# the absolute sound

THE JOURNAL OF HIGH-END

DECEMBER 2023

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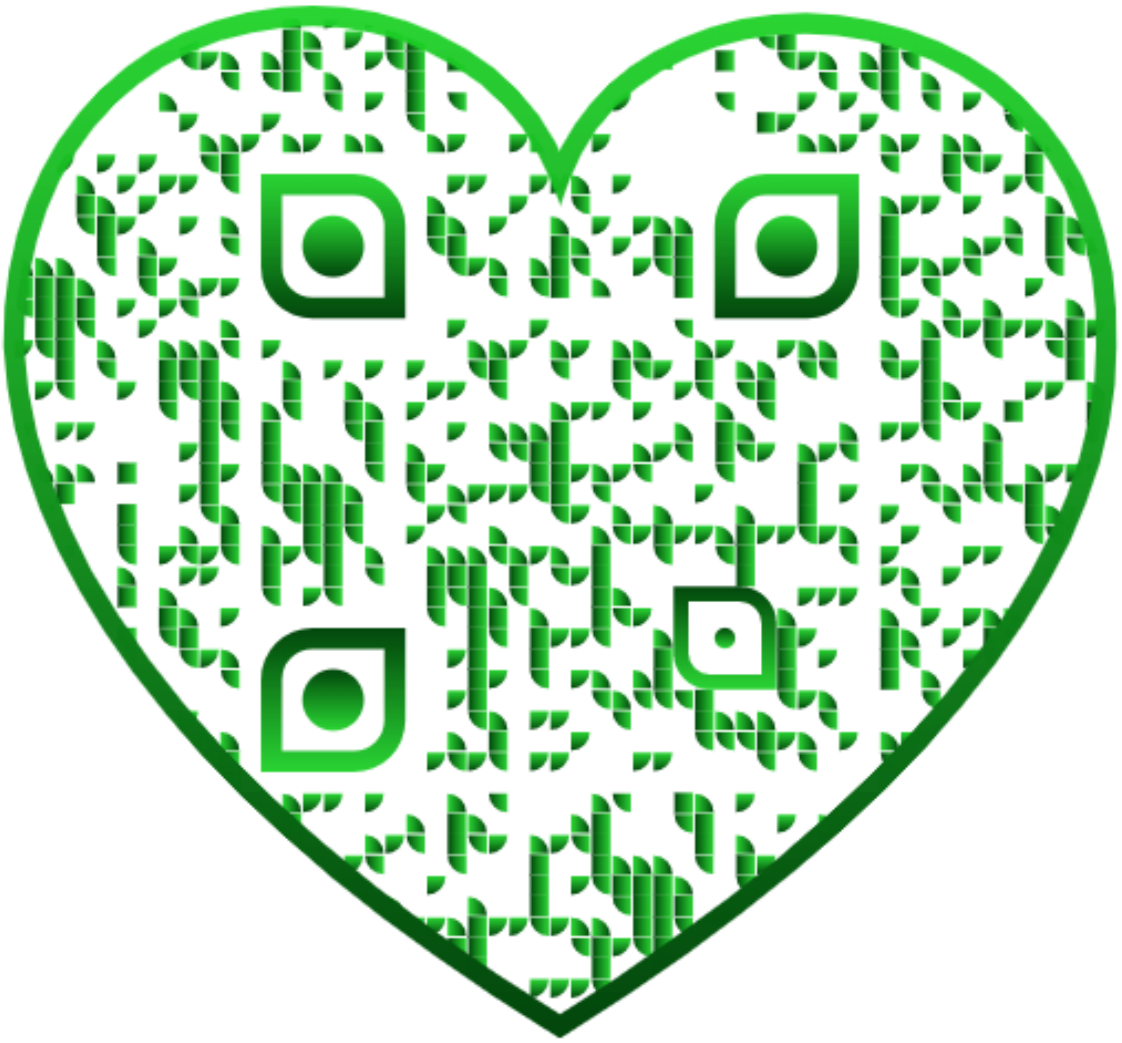

# An American in Germany?

**T66 and the author are from the US — but the speaker's performance and the comments about GoldenEar at the Munich High-End show are for all mankind:**

*"The big AudioQuest room with Rockport speakers was typically fantastic — AQ has a habit of putting their all into the entire system in their exhibit rooms so that you can hear everything that the cables are doing (or, more importantly, not doing).*

*But it was the smaller AudioQuest and GoldenEar room that really captured my attention thanks to a new and very slim pair of GoldenEar T66s."*

– Marc Phillips, Part-Time Audiophile

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This relatively small Scandinavian country has had a worldwide impact on high-end audio. Julian Elliott looks at how the Danes shaped the industry.

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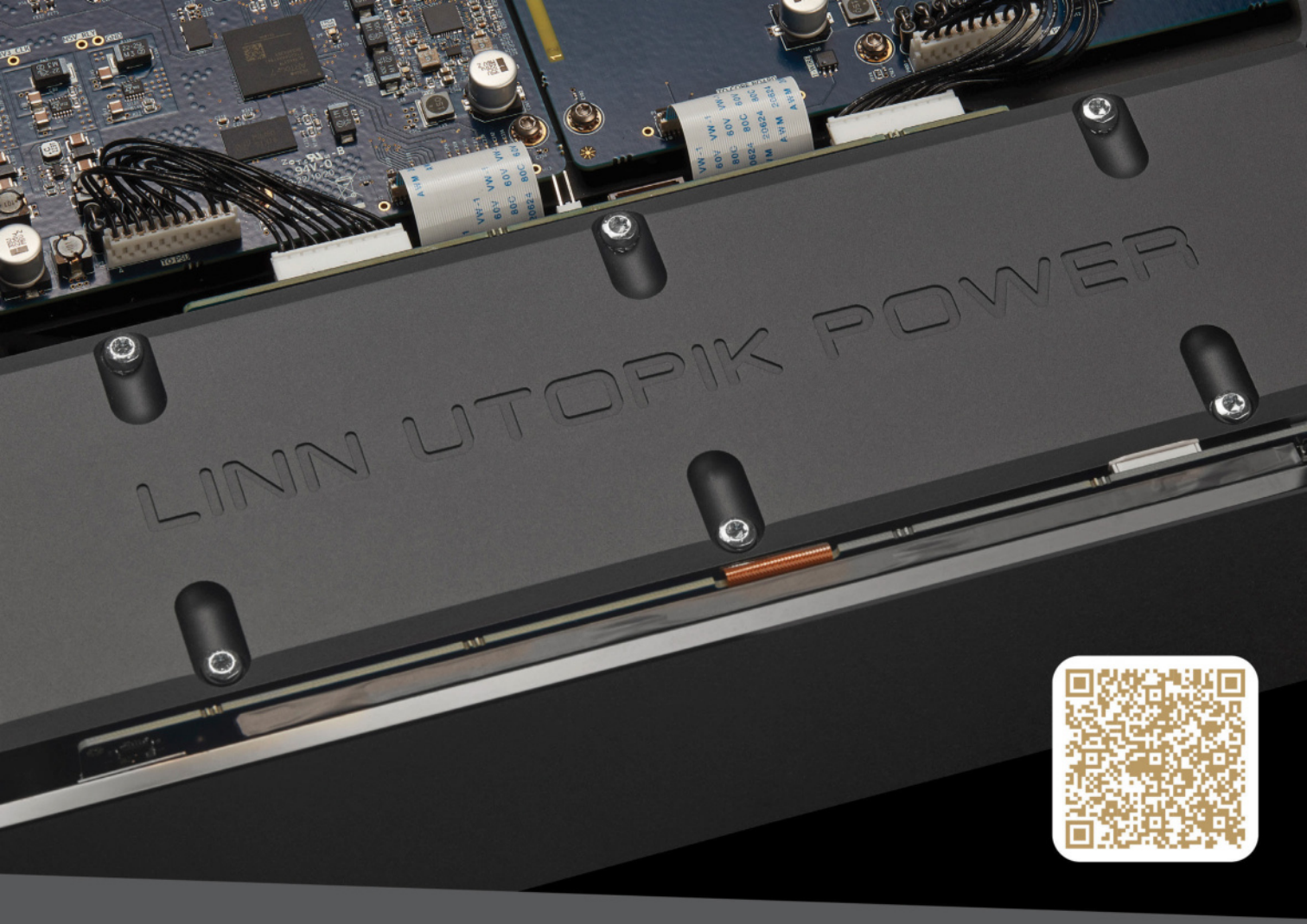


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**Editor-in-Chief**
Robert Harley

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Jonathan Valin

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Neil Gader

**Editor-at-Large**
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**Music Editor**
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**Nextscreen Chairman and CEO**
Tom Martin

**Publisher**
Lance Profyt

**Advertising Reps**
Cheryl Smith (512) 891-7775
Brian Masamoto (310) 498-5245

**Chief Digital Content Officer**
Tom Martin

**Digital Managing Editor**
Charles Kinder

**Digital Content Manager**
Garrett Whitten

**Senior Digital Content Contributors**
Cynthia Blankenship, Michael Fremer, Aaron Jenkins, Michael Johnson, Chris Martens, Steven Stone, Andrew Quint, Thomas Tan

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**Nextscreen, LLC, 2211 Denton Dr., Suite J, Austin, TX 78758**
(512) 892-8682
tas@nextscreen.com, info@theabsolutesound.com

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**Pictured: Lina DAC (top), optional Master Clock (bottom)**

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WADAX

# Different By Design

**“The Wadax Reference DAC is not only the best-sounding DAC I’ve heard, it’s the best sounding by a considerable margin.”**

Robert Harley, Editor-in-chief,
The Absolute Sound, Issue 312, January 2021

At the heart of every WADAX DAC lies our unique, proprietary musIC Chip digital decoding process. Employing a sophisticated, load-sensitive, feed-forward error correction algorithm, it eliminates the parasitic time, phase and amplitude errors that disrupt and distort digital recordings. No other DAC works this way – which is just one reason why no other DAC can sound like a Wadax.

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These advances have created a step-change in digital audio performance – a revolution acknowledged by reviewers around the world.

WADAX

**Not ‘digital’ – not ‘audio’ – just music.**

# Letters

Email the Editor: rharley@nextscreen.com

## No Weak Links Here

I've been a longtime fan of your "From the Editor" column, but your (*RH's*) editorial "The Weak Link Fallacy" (*Issue 142*) really struck a chord. I could not agree with you more. I have been upgrading my system, one or two components at a time, and each new addition has demonstrated a profound improvement to my system. Using a convoluted "weak link" argument, I should see no improvement whatsoever until the entire system is upgraded. It should be obvious to the most casual observer, less garbage in equals less garbage out.

Enough said. Kudos, Sir.

**Dale R. DuVall**

## Rediscovering an Old Favorite

Your editorial (*"The Weak Link Fallacy"*) about a YouTube viewer saying your high-end system is a waste of money because recordings aren't good enough to hear the difference got me thinking about my listening session yesterday. I recently upgraded my turntable's cartridge (courtesy of my wife) and have noticed a tremendous improvement on records I love that I know sound great. Since I was a kid, I've realized that many records just don't sound so hot. I have many LPs that I love for the music but that sonically are not things I want to do a deep listen to. Imagine my surprise when one of my "good-sounding" records sounded muffled and compressed with my new cartridge. Yes, the ones that always sounded good sounded even better, except this one. Listening in, though, I could hear the drum kit sounded more real. I could envision the drummer in a way I never could before. I still sang away to the music and thoroughly enjoyed my hour with the classic punk rock of my youth.

As you wrote about that the plastic boom-box speakers that sounded better with each new AudioQuest cable you heard, my new cartridge allowed me to hear an improvement to that record I never imagined. And I still enjoyed the music as much as ever. You wrote, "No matter how good or poor the recording quality, improving a playback system inevitably yields greater musicality."

I completely agree.

**Jay Jackson**

## Best MBL Explanation

The article on the MBL speakers by Jonathan Valin is the best explanation I have ever read about how these extreme speakers actually work (*the MBL 101 X-Treme MKII review in Issue 342*). The fact that by radiating their sound equally in all directions they achieve not a chaotic mess, but rather extreme fidelity is fascinating. The article explained the reasons very well. Also, the photography by Peter Westphal was excellent: crisp, clean, and uncluttered. I thought the spread on pages 88–89 was strongly eye-catching. Good job all round!

**Laszlo Bencze**

**UPCOMING IN TAS 345**

- 2023 Product of the Year Awards
- JV's famous Super LP List
- Michael Fremer on the MoFi MasterPhono phonostage
- JV on Soulution's new 727 preamp
- Dynaudio Confidence 20 speaker
- Legacy Audio Focus XD speaker
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# From the Editor

# Beyond Right and Wrong

**In this issue's cover story, I review the Solitaire S 540** loudspeaker from Germany's Theory & Application elektroakustik. As you'll read, this unusual loudspeaker features a tall and narrow planar-magnetic tweeter flanked by seven small oval midrange drivers in a line array. The express purpose of this design is to direct nearly all the speaker's sound toward the listener and away from the room's sidewalls and ceiling. In T+A's view, sidewall and ceiling reflections are enormously detrimental to fidelity. In fact, the company has gone to great lengths to create a speaker that reduces sidewall and ceiling reflections.

T+A's approach to speaker design may be unusual, but the idea of preventing sidewall and ceiling reflections from reaching the listener is standard practice in acoustic design. Positioning absorbers or diffusers on the sidewalls at the first reflection points is often the single most important acoustic treatment you can add.

Yet, just two issues ago, Jonathan Valin wrote a masterful review of the MBL 101 X-Treme MKII, a loudspeaker that takes the opposite approach. That speaker radiates full-range sound equally in all directions so that the listener hears mostly sound reflected from the room's boundaries. Jonathan explains MBL's theory and rationale very clearly and persuasively in his essay. But more than that, Jonathan, as knowledgeable and experienced a listener as anybody on the planet, concluded that "the 101 X-Treme MKII is the most realistic-sounding and musically enjoyable loudspeaker I've heard in my listening room (or anyone else's listening room, for that matter)."

So which approach is "right?"

This essay won't attempt to answer that question. Rather, I want to consider the staggering diversity of approaches and technologies in virtually every audio category. One would think that after decades (or more than a century, in some cases) of design evolution in each product group a consensus would emerge as to which technologies and approaches are optimal. But that's far from the case. Exceptional products from the world's most skilled designers compete for state-of-the-art status despite their radically different approaches. Moreover, in many instances the designer working within one technological approach considers the other approaches not just inferior, but anathema.

Take turntables, for example. The world's best designers, working at the edge of the art, disagree on the turntable's most fundamental design feature, the drive system. Basis Audio founder A.J. Conti, who had been designing turntables for more than 30 years, created his ultimate masterpiece in the belt-drive Transcendence. So did Hideaki Nishikawa, who rose to fame as the designer of the Micro Sekei turntables of the 1980s, for his statement TechDAS Air Force Zero. And then there's Gunther Frohnhöfer and the mighty belt-driven Acoustic Signature Invictus Neo. Yet just last week I was talking with the proprietor of a company that makes an ambitious direct-drive turntable, priced in the multi-six figure range, who dismissed any belt-driven turntable as a non-starter in the quest for the state of the art. There's also a small but growing subculture of LP aficionados who believe that rim drive, a technology prevalent in the 1950s and 1960s and largely abandoned today, provides performance superior to belt- and direct-drive.

And then there's the conundrum of power amplifiers. A quarter of the way into the 21st century, the single-ended triode amplifier, the first amplifier technology dating back to Lee DeForest's Audion of 1906, continues to attract a loyal and substantial following. How does this primitive and ancient audio technology continue to survive and find a following in the face of 117 years of amplifier research and development? Is there another field with a parallel to this phenomenon? I can't think of one.

But the greatest diversity in audio is the staggering array of speaker technologies. Just considering the transducers themselves, we've got electrostatic, planar-magnetic, dynamic, horn, plasma, ribbon, air-motion, omnidirectional, and bending-wave drivers. Add to that various woofer-loading techniques—sealed, ported, isobaric, transmission-line—along with radiation patterns—direct-radiating, dipole, bipole, omnipole—and you have a recipe for a virtually infinite number of permutations on a technology that was invented in 1874.

Astonishingly, each of the technologies I've mentioned across various product categories can find adherents today (and I've touched on only a few examples). This phenomenon, unique to audio, points to the reality that each of these technologies has its own merit. We all value different things in music reproduction; the beauty of this incredible diversity is that everyone can find and enjoy the particular technology that brings them the greatest musical pleasure. Unlike other engineering disciplines that have rigid metrics for what constitutes good performance, music listening engages the heart more than the head. Because music speaks to our individual humanity, the glorious multiplicity of technologies available to the music lover will continue to thrive.

**Robert Harley**

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## Analog Audio Design TP-1000 Open Reel Tape Machine

The TP-1000 tape deck was introduced at the Pacific Audio Fest in Seattle in June 2023; the company that makes it, Analog Audio Design, was founded five years ago by Christophe Martinez in western France. Inspired by previous giants of the tape-recorder industry, M. Martinez has undertaken to further improve tape-recorder performance. All mechanical parts and designs are made in his French factory. Significant design features include a capstan that is flywheel stabilized and belt driven by a low-torque Swiss-made DC motor. Constant tape tension is controlled by a unique strain-gauge, microprocessor-controlled design that maintains voltage within 1ms with an accuracy of 0.5gr. A touchscreen/VU meter displays all playback parameters. The TP-1000 can also be purchased with an optional remote control. The deck includes an Ethernet interface/RJ45, so that the TP-1000 can be controlled by a smartphone or tablet via Wi-Fi. An integrated web server enables internal firmware and external maintenance.

**Price: $20,000.**
**analogaudiodesign.com**

## MoFi SourcePoint 8 Loudspeaker

MoFi's SourcePoint 8 offers the same exceptional sound quality as its larger sibling, the SourcePoint 10 but in a more compact package. Created by Chief Speaker Designer Andrew Jones, the SourcePoint 8 sports a custom-made eight-inch concentric driver and MoFi's innovative Twin-Drive high-flux magnet structure. The paper-pulp-mix cone with its new corrugated surround is optimized in shape for resonant behavior and tweeter waveguide requirements. The 1.25" soft dome tweeter with large-diameter voice coil and wide surround extends both the low- and high-frequency response of the tweeter. Combined with the loading of the waveguide which increases low-end efficiency, the tweeter is able to work optimally down to the low 1.6kHz crossover frequency. The SourcePoint 8's cabinet is made of ¾"-thick MDF panels for the sides, top, bottom, and back and boasts a sculpted, multi-faceted, 1.5"-thick baffle that reduces diffraction. Available in real wood veneer of satin walnut, black ash, or a painted satin white.

**Price: $2750/pr. or $2999/pr. with matching stands.**
**mofielectronics.com/sourcepoint8**

## Ideon Audio EOS DAC

Utilizing trickle-down technology from the highly acclaimed Epsilon Absolute DAC, Ideon Audio has managed to create a scaled-down, fully balanced reference DAC for under $10,000. Features include HyperStream 8-channel architecture with a proprietary cutting-edge analog stage and a symmetrical ultra-low-noise power supply. The output stage is direct-coupled, and silicon-carbide rectifiers in the power supply reduce noise. The modular DAC and USB input engine is upgradable and includes new in-house-developed software for the DAC chip (identical to that of the Absolute Epsilon DAC). Additionally, there's new, upgradable chip firmware developed by Ideon Audio in close cooperation with ESS. On tap is native DSD/PCM playback. **Price: $9900, EOS Stream music server; $7500, EOS time reclocker ($7500). audioskies.com, ideonaudio.com**

# We Rocked Munich!

*"I've never given an honorable mention to a cable company... This year is different. AudioQuest totally nailed it at High End Munich 2023. AQ cabling and power delivery, combined with the debut of the Rockport Orion speakers, was a magical combination…*

*This is what I came to the show to experience. Sound as pure as the driven snow, with spatial cues and texture, combined with an emotional performance and spectacular soundstage, captivated me."*

– Chris Connaker, Audiophile Style

*"With regard to the Munich show I must say, that one of the most natural but foremost realistic sounding rooms of the entire show was not from an equipment manufacturer, but from a cable manufacturer — AudioQuest! The system was sort of a blueprint, how close music reproduction can get to the original and how satisfying listening to recorded music can be."*

– Ingo Schulz, FIDELITY Magazine

AQ Dragon, Niagara 7000, CH Precision C1.2, Riviera Labs APL01SE & AFM100s, Rockport Orions system was curated by AudioQuest as part of an ongoing series of Munich presentations at which AQ proves how important *cable*, *power* and *careful curation* are toward creating a truly great audio system.

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# *The Absolute Sound's* High-End Audio Hall of Fame

## 2023's Inductees

**THE IDEA OF** honoring those men and women who've been instrumental in creating the high end has its roots in TAS' series of large-format books, *The Absolute Sound's Illustrated History of High-End Audio*. While researching *Volume One*, TAS writers and editors developed a renewed appreciation for the achievements of the pioneers who laid the foundations of this great industry. To honor these visionary engineers, entrepreneurs, and journalists, we decided nine years ago to create *The Absolute Sound*'s High-End Audio Hall of Fame.

For the inaugural round of inductees in 2014, we asked our writing staff to submit a list of candidates. The criteria were simple: Who had the greatest impact on audio's evolution from laboratory experiment to consumer product? Who shaped the high end most profoundly, either through technical innovation, business acumen, or a combination of both? Since we wanted to focus on those men and women who built the high-performance consumer-audio industry, we omitted the technical pioneers—Edison, Berliner, Blumlein, de Forest, Williamson, et al. (We celebrate them, and other great inventors, in TAS' *Illustrated History* series.) Each year we will add three more individuals to *The Absolute Sound*'s High-End Audio Hall of Fame.

The following nine pages showcase the lives and seminal accomplishments of the most significant contributors to high-quality music reproduction in the home. Today's high-end audio industry would be unimaginable without them. **Robert Harley**

*The Absolute Sound*'s High-End Audio
# Hall of Fame
## 2023's Inductees

# Armando (A.J.) Conti
**(1957–2016)**

## Perfection Personified
Robert Harley

**MANY DESIGNERS** have created great-sounding products and built iconic companies, but we've singled out Basis Audio founder A.J. Conti for induction into *The Absolute Sound*'s High-End Hall of Fame because he exemplifies the highest ideals of our industry. Combining equal parts passion, fanatical attention to detail, and a love of music—along with serious engineering chops—Conti's innovative designs and perfectionist aesthetics set a standard that is a model for the audio business. In the process, he built one of the seminal companies in the American high-end-audio renaissance. More than that, Conti's lifelong dedication to improving LP playback was not driven by the desire for commercial success but by the intrinsic beauty he found in superior engineering. His purity of intent transcended mere commerce.

**"WHEN YOU MEASURE SOMETHING FOR 20 YEARS AND KEEP IMPROVING IT, A THOUSANDTH OF AN INCH STARTS TO LOOK LIKE A MILE."**

Conti's rise from a high-end-audio consumer to one of the world's greatest turntable and tonearm designers began with a happy accident. He recounted to me in a 2007 interview how he came to start building turntables.

"The audio bug bit me when I was about 10 years old, and by my early 20s I had a nice system with Snell Type A speakers and a Linn turntable. I didn't know that there was a high-end industry and didn't read *The Absolute Sound*, but I lucked out to get such good equipment.

"I was playing music at a family get-together when someone walked across the room and the footfalls were picked up by the turntable and blew the woofer in one of my Snell speakers. I thought back to my first year in engineering school [*Conti had a B.S. in Mechanical Engineering—RH*] where I learned about mass-spring-damper systems and thought that with the proper critical damping and isolation, that woofer wouldn't have blown.

"I decided to make a suspension system for my Linn, then a platter, and suddenly realized I should design an entire turntable from scratch. This was 1984. I had just started a small retail audio business out of my house. I had a great job with Teledyne Corporation and had my eye on the presidency of my division. I wasn't looking to get into the business of making turntables for a living—I thought perhaps three or four people would want to buy my product. I made the prototype and was only expecting that it would never skip because someone walked into the room and, perhaps, that I'd *maybe* hear a small difference in the bottom end. That was all I was looking for. When I cued the first record—Thelma Houston's *I've Got the Music in Me*—I was absolutely shocked. Her voice was so effortless and out of the speakers. I started demoing the table in my small retail dealership, and everyone who heard it wanted one. Word got around, and [*Krell co-founder*] Dan D'Agostino talked me into exhibiting it at CES with him. I showed the prototype and walked away with 50 orders. It was crazy."

That turntable was the Basis Audio Debut, which quickly gained critical acclaim and commercial success. A year later, Conti quit his day job to focus on Basis Audio. More models followed, along with a tonearm (the Vector) and then a second tonearm (the SuperArm).

The Vector exemplifies Conti's imaginative approach to design. Before the Vector, there were two main types of pivoted tonearms: unipivots and those with gimbal bearings. In a unipivot, a hollowed-out cup on the arm rests on a sharp point. In a gimbaled bearing, two sets of bearings are oriented at 90° to each other, much like in a navigational gyroscope. Unipivots are prone to dynamic azimuth error; that is, the arm rotates slightly when encountering record warps, changing the relationship between the stylus and groove (azimuth). Gimbaled bearings don't have this problem, but the bearings can "chatter" if not tight enough or introduce excessive friction if too tight.

As Conti related to me, "I was working on a gimbal-bearing design and had the idea to side-

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- Dean Cacioppo, *Tracking Angle*, June, 2023

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load the arm—put more weight on one side—so it leans to one side, which takes up any bearing slop. Then it struck me that I could do the same thing with a unipivot—make it lean in one direction, let it fall over, and give it something to fall over on: a lower bearing. There's no way that any stylus could possibly pull the side-weighted tonearm up off the lower bearing. It's absolutely dead perfect in azimuth and stays that way during the entire play of the record."

That simple yet brilliant innovation is the foundation of the Vector and SuperArm tonearms that have enjoyed decades of acclaim. (Andre Jennings, Wayne Garcia, and I all use SuperArms as our reference.)

I came to know Conti through his several visits to my home to set up turntables for review. To give you an idea of his fanatical pursuit of ultimate performance, I'll share with you a single example that can serve for many.

While setting up the 2800 turntable in my listening room, Conti began talking about the importance of consistency in a drive belt's thickness. I was skeptical that tiny thickness variations—a thousandths of an inch—in the drive belt could affect the speed stability of a 20-pound rotating platter with its flywheel effect. Conti not only explained the physics to me, but he brought with him several belts of varying thickness uniformity. All appeared identical to the naked eye. The sonic differences between the belts were easily audible, not as pitch variation but rather as image solidity, soundstage size, reverberation decay, and clarity. Conti explained, beginning by stating a common misperception: "'If I don't hear speed instability with a turntable, then it's below threshold—so who cares?' But long below the point where someone might recognize fluctuation of the actual tone, the phase is changing, because that tone is slightly changing frequency. It affects the decay of instruments and is quite easily audible. The music sounds clearer without speed fluctuations.

**A.J. TOLD ME, WITH GREAT EMOTION IN HIS VOICE, THAT HE CAME FAR CLOSER TO HIS MASTERTAPE GOAL THAN HE EVER THOUGHT POSSIBLE.**

"When you measure something for 20 years and keep improving it, a thousandth of an inch starts to look like a mile. Sometimes we laugh because a belt that varies in thickness by one thousandth of an inch is completely unacceptable to us now; yet that variance is one-quarter the thickness of a sheet of notebook paper.

"I talked to all kinds of manufacturers of belts, and no one wanted to even attempt to make tighter tolerances than we were getting with our existing belt manufacturer. So, I brought belt-making in-house and designed a specialized machine to grind belts to precise tolerances. We achieve thickness uniformity—on a production basis every day—of ±0.6 microns [*the diameter of a human hair is 75 microns. —RH*]."

How did Conti know that every belt that shipped with a Basis turntable met that extraordinary precision? Because he measured each one. Himself.

I doubt that anyone could make a business case for a small specialist turntable manufacturer designing and building belt-making equipment and spending the time and money to realize that kind of belt precision. But Conti valued performance above all else, not for competitive advantage but simply because he found an elegance and beauty in superior engineering.

In September of 2016, Conti called to tell me, with genuine enthusiasm, about a new turntable he had just finished designing and was about to put into production. This new turntable wasn't simply a better version of the designs he'd been building for the past 30 years but a *sui generis* creation that represented the culmination of his life's work.

This new turntable started life as a one-off modular platform for Conti's development work. It could accommodate up to four tonearms of any length and weight, and the major components could be easily swapped out so that each component's performance could be evaluated independently. As with other designers, A.J.'s goal had always been to reduce a turntable's distortions so that they imposed as little of themselves as possible on the music. But in precisely what ways his turntables departed sonically from absolute neutrality was an unanswered question. He realized that he needed an absolute reference against which to compare the sound of his turntables and tonearms, particularly for this new platform.

Three years before his phone call to me, A.J. hit upon an idea that set him on the quest of a lifetime: to create a turntable that was so sonically transparent that it sounded virtually indistinguishable from mastertapes—a tall order, to say the least. The only way to pursue this audacious undertaking was to rethink from first principles every aspect of turntable design and to continuously compare the sound of the turntable under development to the sound of mastertapes. Time and cost would not be limiting factors.

Conti thus bought two top-tier open-reel tape machines (Ampex ATR-102s) and had one of them modified identically to the ATR-102 at Bernie Grundman's mastering studio. He also acquired 1:1 transfers of first-generation mastertapes from audiophile labels, along with lacquers cut from those tapes and LPs derived from those lacquers cut by Grundman. Now fully equipped to pursue his quest to make a turntable that made LPs sound like mastertapes, he embarked on the engineering challenge. He said of this approach: "What better way to hear where you need to go, or if you achieved equivalency, than if you have the lacquer, a copy of the mastertape that cut the lacquer, and the most neutral and sonically truthful means to play those tapes, a studio mastering tape deck?"

It was after three years of this development work that he called to tell me, for the first time, about his project and the new turntable. It was rare for A.J. to phone me, even though I'd been using his superb turntables for more than a decade (a 2800 Signature and later the Inspiration). A.J. told me, with great emotion in his voice, that he came far closer to his mastertape goal than he ever thought possible.

A manufacturer proclaiming that his latest product is revolutionary is nothing new. Believe me. After 34 years of full-time audio reviewing,

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I've heard my share of spin. Some manufacturers will say anything to get past the review gate. In fact, the hyperbole is often so over the top that it ventures into the humorous (I could tell some stories). But Conti wasn't like other manufacturers. He was such a perfectionist engineer that marketing hype simply wasn't in his DNA. I can count on one hand (literally) the number of designers who are universally and unflinchingly honest about the virtues and shortcomings of a technical design—theirs and others'. Conti's phone call wasn't a sales pitch from a manufacturer to a magazine editor but rather the enthusiastic sharing of a landmark achievement with someone who would appreciate that achievement.

**THE TRANSCENDENCE IS A STUNNING ACHIEVEMENT, SOUNDING UNLIKE ANY TURNTABLE I'VE HEARD.**

Three weeks after that phone call I received the devastating news that Conti had died from a sudden heart attack at age 59. He had been the model of health and vitality. I was shocked and saddened—personally, for his family, and for the great loss to our industry.

Taking delivery of that turntable for review, which was named after his death the A.J. Conti Transcendence, was bittersweet. In front of me was this masterpiece—the culmination of his life's work—but he wasn't there to enjoy the moment.

With absolutely no bias of sentimentality, I can say that the Transcendence is a stunning achievement, sounding unlike any turntable I've heard. What's most striking is how the Transcendence seems to vanish from the playback chain, fostering the impression of hearing back through to the mastertape. Timbres are astonishingly lifelike, with a solidity and tangibility that have eluded other tables. The ultra-quiet background and spectacular retrieval of low-level detail combine to render space, bloom, reverberation decay, and the tail end of cymbal strikes with hair-raising realism. The Transcendence also has an ease, particularly on loud and complex passages, that makes you completely forget that you're listening to an LP. When you discover newfound musical meaning in well-worn discs, you know that the turntable is special. I've been visited by many industry veterans to set up products for review—these are guys who have heard the best of the best—and to a person they have been bowled over by the sound of LP playback through the Transcendence. I consider the Transcendence to be one of high-end audio's greatest achievements—in any product category. *The Absolute Sound* named the Transcendence the winner of its Overall Product of the Year Award in 2019.

The Transcendence also looks radically different from any other of the current "mega-tables." Other six-figure turntables seem to incorporate in their design a need to make the turntable look "impressive" and worthy of the price tag to a potential buyer. The Transcendence brooks no concession to cosmetics. Remember, the Transcendence started life as a one-off development platform. Consequently, the turntable is 100% pure engineering and zero bling. But that uncompromising approach resulted in a beauty that goes much deeper than surface appearance; the beauty is its purity of intent.

Although Conti is no longer with us, his design genius and uncompromising ethos live on in Basis Audio. Conti's widow, Jolanta, vowed to keep the company going and has been doing so successfully for seven years and counting. She found in mechanical engineer Alex Bourque a kindred spirit, who shared A.J.'s fanatical attention to detail. His first all-new design, the $13,700 Basis Bravo reviewed by Wayne Garcia in Issue 341, points to a bright future for the company.

Conti's ethos is best summed up by his thoughts about the Vector tonearm. "The Vector isn't the most expensive product we make, but the payoff isn't measured in money. You end up being pretty miserable if money is how you measure your life, or success, or happiness. The real payoff is when folks are thrilled, when they just love what you do."

Folks have been thrilled by A.J. Conti's turntables for more than 40 years. He not only made an extraordinary contribution to high-end audio, but exemplified the highest ideals that make this industry great. We are proud to induct Armando Conti into *The Absolute Sound*'s High-End Hall of Fame.

*The Absolute Sound*'s High-End Audio **Hall of Fame** 2023's Inductees

# Andrew Jones

**(b. 1956)**

## Versatile Genius

Neil Gader

**TWO LOUDSPEAKERS,** one of them a 12"-tall, two-way compact selling for $129, the other a bespoke, gloriously hand-finished, $80,000, beryllium-cone-equipped, three-way, state-of-the-art floorstander that tipped the scales at 330 pounds. So, what did the Pioneer SP-BS22 LR and the TAD Model One loudspeakers have in common? As you might assume from this handful of facts, very little except for one critical person—designer and engineer, Andrew Jones.

Over the decades Andrew Jones has worked across the widest field of the loudspeaker trade. From the pinnacle where exotic, cost-no-object projects vie for state-of-the-art status amongst the high-end cognoscenti to the humbler flatlands where cost and sales volume is very much the object, his deft touch with materials and technology, astute ears, and instinct for the demands and vicissitudes of the marketplace have meant that his efforts have invariably achieved stand-out success. His contributions to loudspeaker design across this spectrum make Andrew Jones induction into the Hall of Fame an easy choice for TAS' editors.

Andrew Jones' resume reads like a *Who's Who* of elite brands. His long career in the design of loudspeaker systems has taken him from the research group of Malcolm Hawksford to the R&D Department of KEF in 1983 (ultimately becoming KEF's Chief Engineer) to three years at the Infinity division of Harman International and, for 17 years, as Director and Chief Engineer of TAD

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(Technical Audio Devices Laboratories) and Pioneer, the parent company of TAD at the time. After a stint as VP of Engineering for Elac America, then a newly formed subsidiary of Elac Germany, he recently joined MoFi where his debut stand-mount, the SourcePoint10, has garnered unanimous raves from audio journalists and consumers alike.

Educated at Surrey University, Andrew Jones studied Physics with Acoustics and did postgraduate research at Essex University. However, his interest in hi-fi began as a young teenager. In a TAS interview from 2007, he quipped: "I don't know if you know this, but I have an identical twin brother—he's left-handed and I'm right-handed. So, I was born in stereo." The Jones' twins began by pulling apart radios and thus began a learning curve of what real hi-fi truly was. When he got to university, Jones met with a student there in a physics course. This classmate had the classic Quad electrostatics, the 57s, and as Jones stated, "That was my defining high-end moment, and it's stayed with me ever since." Loudspeakers like the 57 represented what a stereo system is for Jones. The other components are important, but it was the loudspeaker's potential that truly captivated his imagination.

**"WHEN I WAS GIVEN MY FIRST RECORD PLAYER, THAT SEALED MY FUTURE. I WANTED TO COMBINE LISTENING WITH THE TECHNOLOGY OF LISTENING."**

In an interview with *Forbes*, Jones admitted: "I was always a geek, interested in science and technology. When I was given my first record player, *that* sealed my future. I wanted to combine listening with the technology of listening. From then until now, I've never wanted to do anything else." As for his education, he would say that "the real university was KEF. My start came from getting to know Laurie Fincham, technical director of KEF. After having to turn down a six-month placement with Philips Research in Eindhoven during my undergrad studies, I applied to KEF, but was too late for that year. It did, however, start a relationship that led to a job offer there a few years later. That was my dream job, and an unsurpassed environment for learning and growth." At KEF he was part of the team that contributed to developing the Uni-Q, a concentric transducer (also known as "coaxial"). This proved to be a turning point for Jones.

After he joined TAD came the development of the Model One (later known as the Reference One) and its stand-mounted cousin, the CR-1. There, Jones and his team developed the legendary beryllium-cone 1-3/8" tweeter/6.5" midrange concentric—an effort that was pivotal in expanding his knowledge of complex designs and rare materials and furthering the evolution of the concentric transducer. Reflecting on this unique driver, he noted that a "speaker is a three-dimensional device; it isn't just how it sounds on-axis; it's how it radiates everywhere—how it's interfacing with the room. How you control all that sound is a three-dimensional problem, and as TAD started working on concentric drivers, it seemed to me that the concentric was the solution to that problem." Jones has also pointed out the advantages in terms of packaging. By piggybacking the tweeter onto the midrange, critical space on the baffle is freed up allowing the designer greater freedom to configure the cabinet dimensions and internal layout.

Whether building for a price or cost-no-object, Jones' basic philosophy has remained consistent—coherence, integration, and accuracy. This has been borne out across every speaker Jones has designed. Regardless of price or size and all that attends those limitations, his speakers share the same intrinsic voice—marvelous tonal balance, exceptional dynamic impact, and bold and engaging musicality. A sound that speaks of immediacy not passivity.

His preference for three-way designs with concentric drivers was often accompanied by the wry statement that "the only good two-way is a three-way." But budgetary realities often necessitate compromises. A master of adaptation, Jones figured out clever workarounds in instances where a coincident driver was too expensive to implement. "Coincident drivers primarily help with driver integration and improved off-axis performance. One of the ways this happens is by the cone acting as a waveguide for the tweeter to control its directivity. In a non-coincident speaker this can be done by mounting the tweeter into its own waveguide. Doing so controls the directivity, improves its efficiency, and allows the tweeter to work lower in frequency with reduced distortion."

The success of the Elac Debut series proved this point. The two-way compact B5 and its floorstandng sister speaker, the three-way F5, both in the conventional configuration where the tweeter is separated from the other drivers on the baffle, were nonetheless sonic marvels at prices that had competitors gritting their teeth. In my review I said: "The Elac F5/B5 go beyond just being rare, good speakers for the money. They're a veritable gift to budget-conscious audiophiles and the younger au-

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dience, particularly those looking for a cost-effective, room-filling alternative to headphones."

Jones' philosophy remains one of conveying the "intentions of the artists and engineers that make the recordings." He's not a slave to a particular technology, either; rather, he favors what best fulfills the goals within the size and cost constraints of the project. For examples of his favorite design efforts, it would likely be a toss-up between one of the most expensive and one of the cheapest. Certainly, the original TAD Model One (three years to develop and prototype) remains the truest expression of everything he always wanted to put into a speaker. But Jones, up for any challenge, also derives gratification by engineering speakers that defy the odds, so at the other end of the price scale stand his designs at Elac, models like Uni-Fi, Navis, and Adante, all outfitted with concentric drivers, and each designed from the ground up for that application.

But Jones would likely admit to an extra special pleasure at seeing the pint-sized Pioneer SP-BS22 LR flying off the shelves at Best Buy and bringing in new generations of audio enthusiasts at prices virtually anyone could afford. "At these price points, audiophiles are not necessarily purchasing for themselves, but they are recommending them to others. I want those new listeners to be surprised when they listen."

**"YOU ALWAYS CONSIDER WHAT YOU WOULD HAVE DONE IF YOU'D HAVE HAD MORE TIME OR MORE MONEY TO SPEND."**

I asked Jones the extent that the role of critical listening plays in the development of a new speaker. "I have often said that 80% of the design work is done before listening. This, of course, is because of years of experience in designing and listening, so that I know what to look for in the initial design goals. However, in some respects the final listening is the most difficult, as so many extra variables come into play. These include the room in which I am listening, the music and recording quality and provenance, the choice of equipment to partner with the speakers, and, of course, deciding on what should be my target sound. So, the listening can take quite some time and is critical in the final process, but there is an awful lot of work that precedes it."

I've attended many of Andrew's CES demos. They were always entertaining, but Jones was fearless in his choice of reference material. And this is not always the case with exhibitors, who often carefully curate music selections to show their products in the best possible light and conceal any flaws. I recall Andrew demoing the TAD Reference One in an upstairs room at the Venetian one year. He played a multitude of complex and intimate cuts, shifting between a burn-down-the-house big band and an early Peter, Paul & Mary recording of "All My Trials." Attendees commented on the guts it took to demo brass at full tilt under "show" conditions. (Nothing can drive people from a room quicker than distorted trumpets!) But it didn't faze Jones. He just stood off to one side, the glimmer of a smile on his lips, confident in the Ref One's potential. And everyone held their breath in awe. I could see people exit the room shaking their heads in admiration at having witnessed one of the greatest loudspeakers they'd ever experienced.

In his free time, Jones is an avid and talented archery hobbyist. That's right, as in Robin Hood or William Tell. He even teaches group classes in the sport. Somehow it all seems to fit the personality of Andrew Jones—that the competitive guy with the sharp aim in the audio marketplace should also be hitting bulls-eyes with a bow and arrow on the weekends.

In looking back over his career Jones points out that "education is important, a questioning mind is critical, but finding a mentor who can guide you is crucial. I've been very fortunate in having access to some of the greatest minds in audio history and have taken every opportunity to learn from them."

In an earlier TAS interview in 2007, I asked Jones what still inspires him about going to work every day. "Just doing better—it's a passion. As an engineer you never feel as if you've finished your work. After you've signed off on a project, you always consider what you would have done if you'd have had more time or more money to spend."

What's next for Jones? His latest effort under the MoFi banner is the SourcePoint8, a smaller 8" coincident version of the SourcePoint10. Jones generally begins a new line like SourcePoint by designing the smaller versions first. He adds modestly, "I always start with the smallest first, if only because they are the easiest! It gives me an initial confidence boost that hopefully is not dashed as I begin work on the bigger ones. It all starts with the driver development." So, if past is prologue and "smallest" is indeed first, my best guess is that we have a lot more to look forward to from this gifted designer and already much to be thankful for from this well-deserved inductee into *The Absolute Sound*'s High-End Hall of Fame.

# Bernie Grundman

**(b. 1943)**

## Delivering the Sonic Magic

Michael Fremer

**THIRTY-THREE-YEAR**-old Bernie Grundman placed a fresh lacquer on the platter of his A&M Studios mastering suite lathe during the summer of 1977 and cut sides for *Aja*, Steely Dan's best-selling album. Within three weeks of its September 23rd release, the album reached the top five on the Billboard Top LPs and Tape chart, eventually peaking at number three. At the 20th Annual Grammy Awards, *Aja* won "Best Engineered Recording—Non-Classical" and was nominated for album of the year.

In 2023, 79-year-old Bernie Grundman placed a fresh lacquer on the platter of his lathe at Bernie Grundman Mastering and again cut from tape *Aja* lacquers—this time for the Analogue Productions 45rpm UHQR edition.

In the 46 years between those two *Aja* lacquer cuts much has happened to and for Bernie Grundman. In 1984, after 16 years at A&M, he

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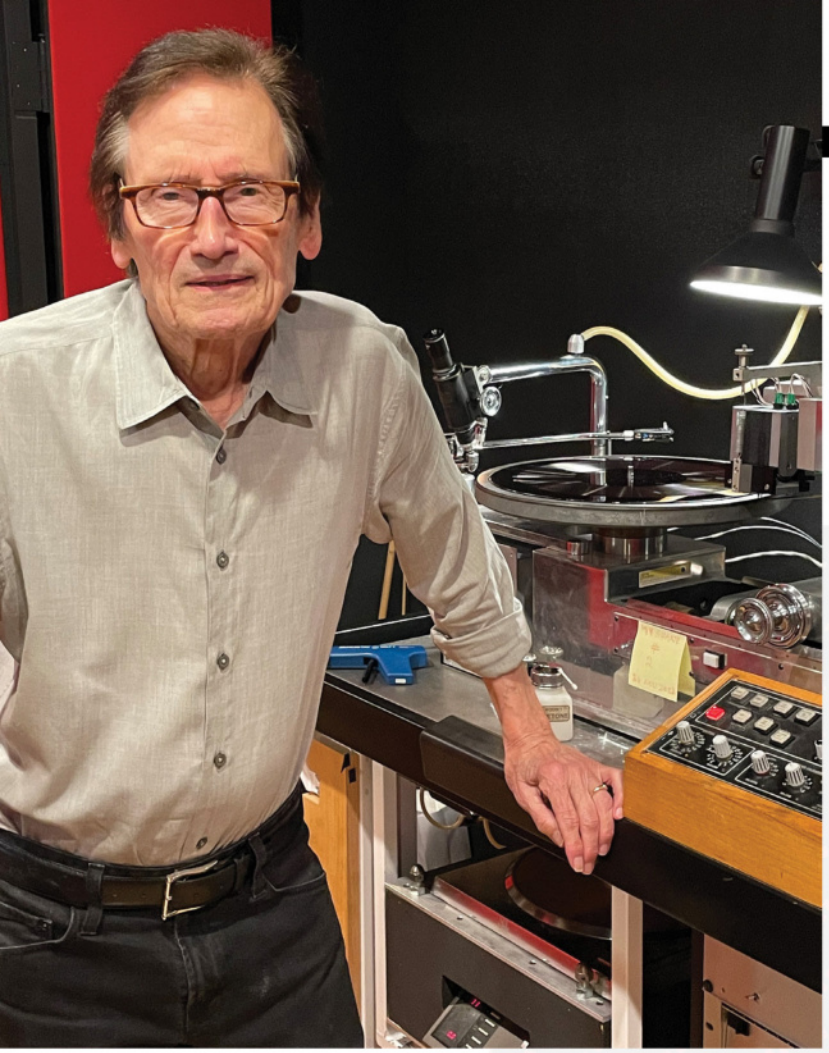

left to launch Bernie Grundman Mastering. Fourteen years later, in 1998, Bernie Grundman Mastering relocated to its current sprawling six-studio 1640 N. Gower Street, Hollywood, location, where almost a quarter of the way through the 21st century Bernie continues cutting lacquers in his world-famous mastering suite, using a pair of modified Scully lathes fitted with Haeco/Westrex cutting heads driven by the customer's choice of either solid-state or tube electronics. A pair of modified Technics SP-10 direct-drive turntables spin the lathe platters.

The studio's custom-mastering consoles and associated gear are designed and built at the facility's on-site technical shop. Analog purists who wish to can bypass it all and plug their own tape decks directly into the lathes to achieve the most direct signal path. Seven mastering engineers currently work at BGM, including the formidable lacquer-cutting specialist Chris Bellman.

At BGM Bernie has mastered for vinyl and CD some of the most important late 20th century record releases, including Michael Jackson's *Thriller* and *Bad*, as well as albums by Quincy Jones, Van Halen, and, of course, Prince, with whom he had a long and trusting relationship. Bernie cut *Purple Rain* among other Prince classics. In 1994 when Michael Hobson and Ying Tan started Classic Records and licensed more than two dozen titles from the RCA "Living Stereo" catalog, they went to Bernie Grundman to cut the lacquers. When Classic later reissued Mercury Living Presence titles originally recorded to 35mm tape, the label restored 35mm playback decks and installed them at Grundman's. Later, the label licensed the Led Zeppelin catalog, and again Grundman did the cutting using the original mastertapes. Those are but a few highlights of Bernie's cutting work during the "vinyl is dead" decade. You'll find more than 5000 Bernie Grundman mastering credits (discogs.com/artist/307942-Bernie-Grundman) on Discogs.com.

**DURING HIS A&M TENURE, GRUNDMAN MASTERED AND CUT LACQUERS FOR HUNDREDS OF ICONIC ALBUMS.**

Years earlier, when Bernie was eight, he moved with his family from Minneapolis, Minnesota, to Phoenix, Arizona. When he was 14, he spotted in a store window a sign that read "High Fidelity Sound Systems." Bernie was immediately fixated by what he spotted inside: loudspeakers and glowing tube amps. The store owner took notice and invited him in to listen. Like so many of us, that was *it* for Bernie. All his money went for audio gear and records—mostly big band albums—until the cover of an unfamiliar record piqued his curiosity. It was Clifford Brown and Max Roach's 1955 Emarcy release *A Study in Brown*. As with his first hi-fi experience, Bernie had never heard anything quite like that bebop record, and it turned his head around.

So much so that, by the time he was 19, he was the owner/operator of an after-hours Phoenix jazz club! Following time in the Air Force, where he worked on radar-jamming equipment used in B-52 bombers, Grundman made his way to Capitol Records in Hollywood and asked the studio head what he had to do to become a recording engineer. He was advised to return to Phoenix and get an E.E. degree. Bernie went home and enrolled in Arizona State University.

But the recording-studio bug had sunk its mandibles, and Bernie called a local studio for which he'd done some work a few years earlier. The owner told him something he *never* expected to hear: Roy DuNann, who had run Capitol Records' engineering during the 40s and into the 1950s—the same Roy DuNann who recorded Tennessee Ernie Ford's "16 Tons" before leaving in 1956 to build Contemporary Studios for Lester Koenig and then record all those classic Contemporary jazz albums, was living in Phoenix and working at this little studio while attending to his wife's health issues!

One thing led to a dozen others, and eventually Bernie found himself in Van Nuys, California, meeting with Howard Holzer, who along with Roy

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DuNann had figured out how to get a Westrex cutter head to operate in stereo, and pretty soon Bernie, thanks to Howard and Roy's intervention, found himself cutting lacquers in Los Angeles at Lester Koenig's Contemporary Records studio!

Elektra Records founder Jac Holzman and A&M Records co-founder Herb Alpert, both fans of Koenig's meticulous production and sound, went to Koenig to master their labels' early releases. In addition to jazz, Grundman found himself cutting The Doors, The Tijuana Brass, and many other artists. In 1968, after two years at Contemporary, Herb Alpert offered Grundman the opportunity to set up and head the disc-mastering facility at the new A&M Records Studios located on the former Charlie Chaplin Studios lot in the heart of Hollywood at 1416 North La Brea Avenue, corner of Sunset.

During his A&M tenure, Grundman mastered and cut lacquers for hundreds of iconic albums—more than 100 of which went Gold and/or Platinum— released on A&M and on many other labels whose artists recorded at A&M's highly acclaimed recording facilities. Grundman cut Joni Mitchell's *Ladies of the Canyon* and *Blue*—considered by many music critics and fans to be two of the greatest albums ever released— and albums by James Taylor, Carole King, Jackson Browne, and Fleetwood Mac, among so many others. In 1997, 13 years after leaving A&M and a year before re-locating to the Gower Street facility, Grundman opened a Tokyo mastering studio. His reputation and reach were now worldwide.

A few years later, during the Classic Records era, Bernie cut lacquers directly from three-track mastertapes, mixing them live to two tracks—extraordinary, still in print (and probably never to go out of print) versions of Miles Davis' *Kind of Blue* and The Dave Brubeck Quartet's *Take Five*.

**"MASTERING REQUIRES SUCH CRITICAL THINKING, SUCH CRITICAL LISTENING, THEIR EARS HAVE TO BE TOTALLY DIFFERENT."**

In 2019 at the "Making Vinyl Hollywood" event, another legend— three-time Grammy Award-winning guitarist Steve Vai—presented Bernie Grundman with a "Lifetime Achievement" Award. Vai's well-informed speech began with a humorous and true quip. After listing just about every recorded format from shellac to DAT to vinyl and CD, he quipped: "You have to master… whether you like it or not….it's kind of like taxes, except a little more expensive."

"We all look forward to that final 'fix-it' job. The person who takes that final last step for us, before mass production, must have the most refined ears in the business, and that's the mastering engineer. Mastering requires such critical thinking, such critical listening; their ears have to be totally different," he went on, "and there's one name that has eclipsed all the others as having *those* ears, and that's Bernie Grundman."

Though there's much more that *can* be said about Bernie Grundman, nothing more needs to be said. So, for now, let Steve Vai have the last word about the great Bernie Grundman, whose current work clearly demonstrates that old ears can still be the greatest ears!

## PREVIOUS INDUCTEES

William Zane Johnson, (1926–2011)
Paul Wilbur Klipsch, (1904–2002)
Henry Esplin Kloss, (1929–2002)
Hiroyasu Kondo, (1941–2006)
Saul B. Marantz, (1911–1997)
Frank H. McIntosh, (1906–1990)
Jim Thiel, (1947–2009)
Julian Vereker, (1945–2000)
Edgar Villchur, (1917–2011)
Peter Walker, (1916–2003)
Mark Levinson, (b. 1946)
Arnie Nudell, (1937–2017)
Harry Pearson, (1937–2014)
Ivor Tiefenbrun, (b. 1946)
Jim Winey, (b. 1934)
Alan Blumlein, (1903–1942)
Doug Sax, (1936–2015)

J. Robert Stuart, (b. 1948)
Atasushi Miura, (1934–2022)
David Wilson, (1944–2018)
Sidney Harman, (1918–2011)
J. Gordon Holt, (1930–2009)
Masaru Ibuka, (1908–1997)
Akio Morita, (1921–1999)
John Bowers, (1923–1987)
Raymond Cooke, (1925–1995)
Richard Vandersteen, (b. 1950)
Robert Carver, (b. 1943)
Nelson Pass, (b. 1951)
Dan D'Agostino, (b. 1947)
Keith Johnson, (b. 1938)
Arthur Janszen, (1907–1991)
John Curl, (b. 1946)
Joe Grado, (1924–2015)

Peter Suchy, (b.1945)
Jacques Mahul, (b. 1949)
Gayle Martin Sanders, (b. 1947)
Siegfried Linkwitz, (1935–2018)
Alon Wolf, (b. 1964)
Jurgen Reis, (b. 1961)
Bill Conrad, (b. 1946)
Lew Johnson, (b. 1944)
Paul Barton, (b. 1951)
Andrew Payor, (b. 1959)
David Hafler, (1919–2003)

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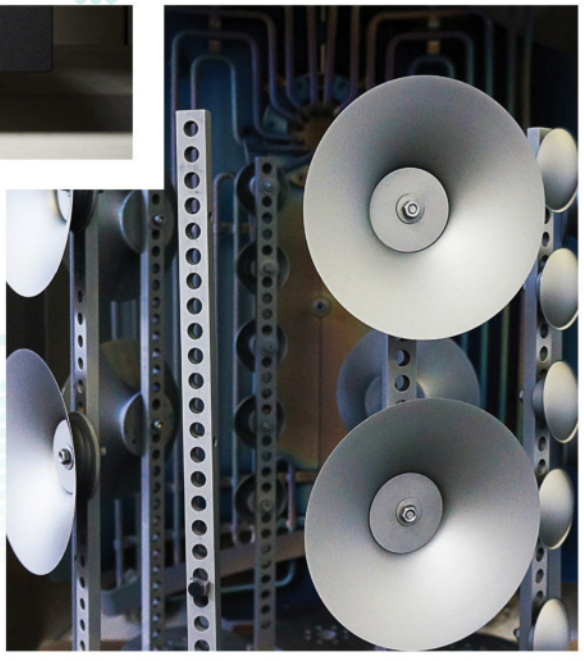
# A Silicon Valley for Sound

## Exploring Denmark's Extraordinary Success

Julian Elliott



Raidho's diaphrams are coated with a layer of artificial diamond.

**In 1919, U.S. President Woodrow Wilson was attempting to** ratify the post-WWI Treaty of Versailles, as well as form a new "League of Nations" as a measure to mitigate against the risks of devastating future wars.

He faced significant domestic opposition, so embarked on a national tour to convince the public and wavering politicians that his approach represented the best way forward. Wilson's schedule was hectic and his health deteriorating, causing his doctors no end of worries.

In San Diego's Balboa Stadium, a crowd of 50,000 turned up to hear what he had to say. But how would they? The ailing president could not feasibly raise his voice to be heard by that many people, so the organizers turned to a brand-new technology known as a loudspeaker, made by a company called Magnavox, whose team set up a system enabling Wilson's words to be amplified to his audience.

The speech was a success, not least because people could actually hear it, and it went down in history as the first time a U.S. President had his voice amplified over a PA system.

As a moment in audiophile history, it's momentous. Magnavox was founded by two friends, American Edwin Pridham and Peter Laurits Jensen, a Danish engineer who met Pridham after leaving his home country and moving to the U.S. in 1909. Together, they built on earlier experimental work by others to produce the world's very first moving-coil loudspeaker, which they termed "Magnavox" from the Latin for "great voice."

**Danish people have won 14 Nobel prizes, including 10 in the sciences, putting the country fifth on the global list for scientific Nobel prizes per capita.**

This story, and the events leading up to it, is recounted in fine detail in Birger Schneider's superb history of the loudspeaker, which opens a 2015 publication celebrating 100 years of Danish loudspeaker manufacturing[1].

The book has sections dedicated to some of the best-known speaker brands in the world—Audiovector, Audio Technology, Bang & Olufsen, DALI, Dynaudio, Jabra, and Scan-Speak, among others.

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- Robert Harley, *The Absolute Sound*, July/August 2019

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- Joe Harley, Record Producer

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And beyond the book, there are also speaker names that will be familiar to many audiophiles such as Raidho, Børresen Acoustics, Jamo, Gamut Audio, Buchardt Audio, JERN, Scansonic, Ambitious Audio Design, Peerless, M&K Sound, and Tangent. Then there are many other Danish companies whose products grace racks worldwide: Ortofon, Gryphon, Vitus Audio, Copland, Densen, Steinway/Lyngdorf, Ansuz, Aavik, Purifi, Mørch, Bergmann Audio, System Audio, Alluxity, Soekris Audio, Peak Consult, Phison Audio, and Gato Audio, among others.

This is an impressive list of names representing a notable legacy. It's worth stressing that, starting in the 1970s, virtually all the famous high-end loudspeakers were built using drivers made by Scan-Speak, Peerless, and Audio Technology—and many still are. All of this, combined with the fact that one half of the Magnavox team came from Denmark, raises a question that has been on my mind since I briefly visited Copenhagen a few years ago. How can this small northern European country, with a population of just six million people, have become such a leading light in the world of hi-fi?

Loudspeaker production at Audiovector.

## Denmark In Context

Before delving into the details, it's worth putting Denmark into context. At the time of writing, it currently sits in 112th place on *Wikipedia*'s list of countries ranked by population, just above the Central African Republic, Finland, and Lebanon, and just below Congo, Turkmenistan, and Bulgaria. None of those places are noted for hi-fi. In U.S. terms, Denmark's population is similar to states such as Colorado, Wisconsin, and Maryland.

At around 16,600 square miles, Denmark's physical size makes it slightly larger than the Netherlands (which has about three times as many people), Switzerland, and Bhutan, and just smaller than Estonia, the Dominican Republic, and Slovakia. In 130th position out of 195 on another *Wikipedia* list, Denmark is firmly in the bottom half of countries by size. Interestingly, nowhere in Denmark is more than 32 miles from the sea.

However, what it lacks in size and population, it more than makes up for in other areas. The country consistently ranks at the very highest levels according to global quality-of-life models, with its progressive government, income distribution, strong industry, and well-regarded social structure recognized as important contributing factors. A sophisticated agricultural sector, as well as energy, pharmaceuticals, and shipping represent key industries. At some point, many audiophile products may well have been carried by Maersk's 700-vessel fleet, which takes Danish and other goods all over the world.

**It spends more on education as a percentage of GDP than most other European countries.**

Denmark also has a strong education sector, which has played a crucial role in the country's successful development. It spends more on education as a percentage of GDP than most other European countries, supporting many aspects of learning, including an admirable university research sector (which is important for hi-fi companies, as we'll see later).

Its technical education is especially notable and may well stem from early innovations in fields that have shaped modern technology, the most notable being the discovery of electromagnetism by Danish physicist and chemist Hans Christian Ørsted. His realization that

Audiovector founder Ole Kilfoth and his son Mads, the current CEO.

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Building Børresen loudspeakers in Aalborg, Denmark.

Headquarters of Audio Group Denmark.

electric currents create magnetic fields led to the creation of the telegraph, microphones, loudspeakers, transformers, and electric motors, to name just a few examples of his influential legacy.

Looking at the broader picture of national technical achievement, Danish people have won 14 Nobel prizes, including 10 in the sciences, putting the country fifth on the global list for scientific Nobel prizes per capita.

Compared to many other countries, Denmark also has a very strategic approach to supporting its key industries. There are 13 publicly funded national clusters—business and technology zones in key areas of strength, comprising companies that work together along with knowledge-based institutions to promote growth and value creation. Among the 13 clusters, which cover leading areas such as design, fintech, life sciences, food, and defense, is one for "sound technology" known as the Danish Sound Cluster.

### Entrepreneurship Beyond Hi-Fi

That sound technology is nationally recognized as one of Denmark's strongest areas is intriguing. While the nation has an outperforming hi-fi sector, this has to be considered in the context of its wider audio industry. According to recent Danish Sound Cluster research[2], that industry comprises around 600 companies collectively employing 52,000 people.

**The Danish sound industry also attracts a huge number of sound students and professionals working here.**

The country has particular strength in hearing aids—the majority of those 52,000 works for hearing-aid companies or in their supply chains, and some of the world's top companies in this highly competitive industry are Danish. Companies like Demant, GN, and WS Audiology own numerous well-known brands sold on every continent.

There's also strength in professional audio. Danish companies like Brüel & Kjær and DPA Microphones are well-known to studio professionals, but over their long histories, Danish companies such as these have also developed other commercial businesses in areas such as vibration transducers, simulators, signal conditioning, testing equipment, acoustic analysis software, defense, automotive solutions, and so on. In fact, it was a DPA microphone that recorded the sounds of Mars on NASA's "Perseverance" Rover.[3]

Audiovector founder Ole Klifoth points to this professional legacy as inextricably linked to the home-audio sector. "B&K for a long time made the most precise microphones in the world," he explains. "It's very good to have precise measuring equipment for development of loudspeakers."

Torben Vilsgaard, CEO of the Danish Sound Cluster, puts the strength of Denmark's audio industry down to several factors. "We have a huge competence pool," he explains. "And today, the Danish sound industry also attracts a huge number of sound students and professionals working here. We also have a very strong academic tradition from Danish universities, especially the Technical University of Denmark, known as DTU, and Aalborg University.

"The Danish culture is very beneficial for the development of innovative products in general. Danish people are curious, and we always believe we can do better (whether true or not doesn't matter), so Danish companies are strong on new innovative products and services, especially in areas where we have been strong for decades—for

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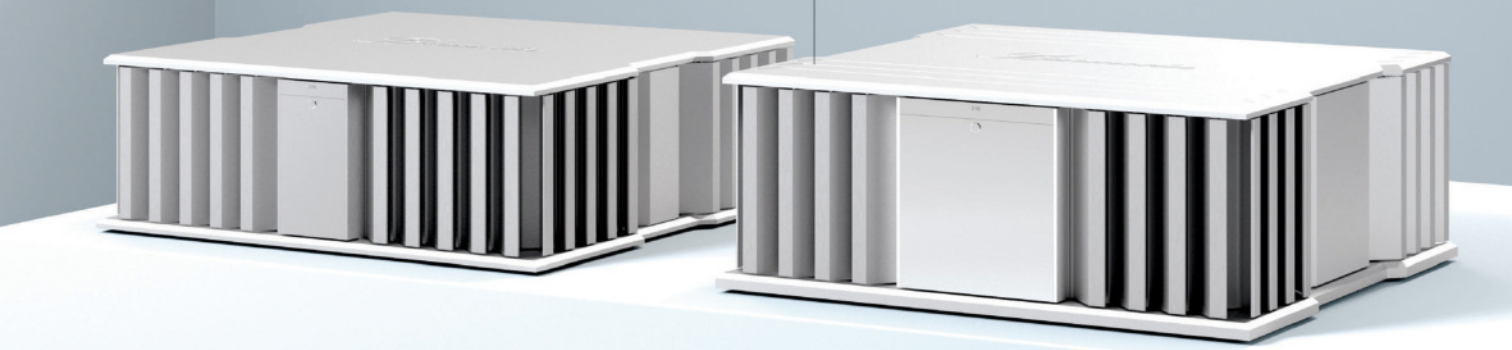

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Christen H. Nielsen, Chairman of the Board of Ortofon.

sound, but also in pharma and wind turbines, for example."

He also points to a strong entrepreneurial streak, which supports the commercial development of new ideas and the companies to capitalize on them.

"It is almost a tradition in Denmark that if an experienced engineer doesn't get approval for his or her newest idea, he will seriously consider starting his own company."

This theme is echoed by Audiovector CEO Mads Klifoth: "I think a new company with young people can benefit greatly from talking to the government's support program, and go to the workshops with brand-builders, storytellers, and so on."

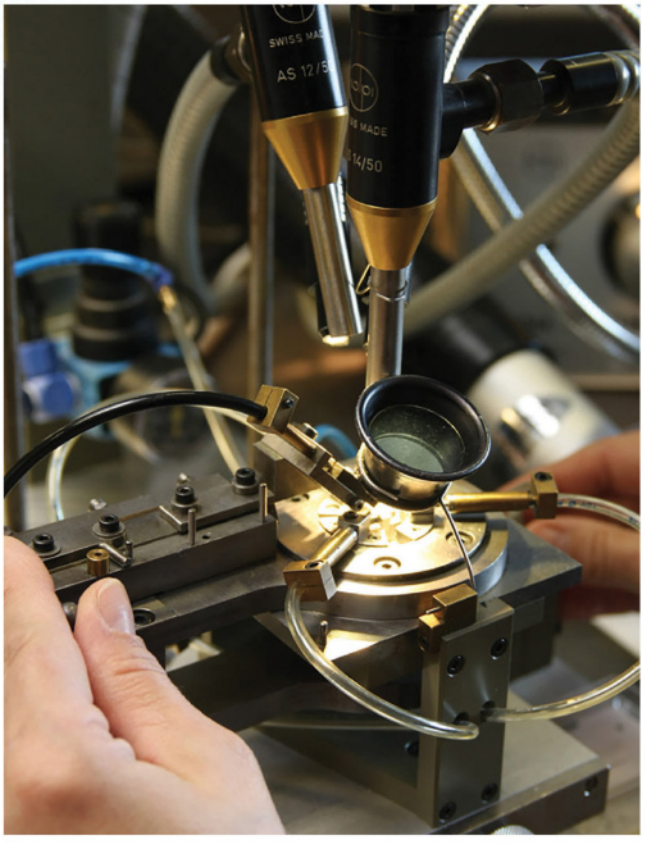
It is also remarkably easy to get started in the audio business. Morten Kim Nielsen, Sales & Marketing Director at Dantax, the publicly listed company that owns the Raidho, Scansonic HD, and Gamut speaker brands, says Denmark's extensive digital infrastructure encourages entrepreneurship. "Denmark is one of the most digital countries in the world, and it only takes a few hours to set up a new company online. It's very easy to get started, and you also have organizations like the Sound Cluster supporting audio businesses in a way we haven't seen before. Also, there is no real heavy industry in Denmark, but a lot of small and medium-sized companies, which makes us agile in adapting to market needs."

He emphasizes the way in which people in the industry can leverage transferable skills by going from one company to another, all within the general audio environment. One example could be jumping from a testing company to working on sound-related engineering challenges for a wind-turbine business: "Innovation comes through in our hi-fi industry, with a lot of acoustics and engineering in the education sector, which is supported by audio companies. Many engineers have studied acoustics or electronics engineering. People start in these areas to try and get into the hi-fi or acoustics industry, but they can use these skills across different industries."

This is clearly a crucial part of the Danish audio scene, with Michael Børresen of Audio Group Denmark, who himself has worked for different companies, explaining how people often stay in the industry, even after a particular company has not succeeded.

**"I think a new company with young people can benefit greatly from talking to the government's support program, and go to the workshops with brand-builders, storytellers, and so on."**

"When a company dissolves for one reason or another, the people from that



Cartridge manufacturing at Ortofon.

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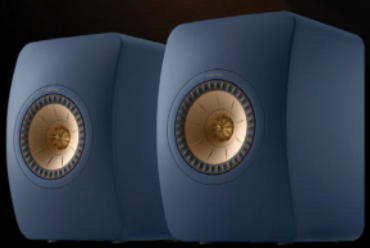

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Ortofon's headquarters in Nakskov in the south of Denmark.

company are still active and they find something else to do," he says.

"That's how other collaborations or structures with new products, new companies, and new possibilities are created. It's a situation where knowledge is key. If that knowledge is not put to use in one company, it will be used in another, maybe making a niche product or something else innovative. The incubation environment we have in Denmark for nurturing our companies is pretty unique."

Picking up a historical example that nicely illustrates this point is Christen H. Nielsen, an industry veteran who previously worked for Jamo and is now Chairman of the Board of 100-year-old Danish manufacturer Ortofon. His personal view is that much of the country's success in hi-fi is down to technical expertise mixed with persistent entrepreneurship in a system that allows new companies to flourish.

"SP Radio in Aalborg was established by an engineer in the 1930s. It made radios and consumer products, then in the 1950s specialized in VHF communication for ships.

The company was quite interesting because of the technology, and it led to other businesses being created from people who worked there. Today Aalborg in the north of Denmark is a kind of IT and electronics hub, because so many companies started from SP, and this is why Aalborg University is so strong in this—electronics is a close relative of acoustics.

"The culture and conditions in Denmark have been very favorable for developing an acoustic industry. There is a strong tradition of small and medium-sized companies, and there is a lot of flexibility and initiatives. When one company goes belly-up, the people go elsewhere and start doing something new.

People here get quite good unemployment benefits, which means that they are not afraid of changing jobs. Going to another company that turns out to be unsuccessful means they may be supported on the dole for a few months, but then they will find a new job. People are not afraid of moving on, and it keeps companies on their toes in terms of staff retention.

"This has happened a lot in this country. You have spin-offs—people work for a company, then start working for themselves."

Ortofon itself provides a good example of this eagerness to try new ideas at the corporate level. While audiophiles know it as a legendary cartridge manufacturer, it also has a thriving business line producing precision components for the hearing-aid industry. "It's a mixture of cultural factors, history, tradition, and individuals in this country," Nielsen continues. "Denmark is a kind of acoustic hub, and there are so many companies working with acoustics, not just the usual hi-fi names. This creates a kind of pervasive thing about acoustics in this country. It is strongly supported by the universities and the technical high schools, where there are special subjects in acoustics.

**"There's an understanding of the importance of acoustics."**

"There's an understanding of the importance of acoustics, which means that you see acoustics and ideas about acoustics penetrating other areas such as the wind-turbine companies, who hire acousticians who work to reduce noise.

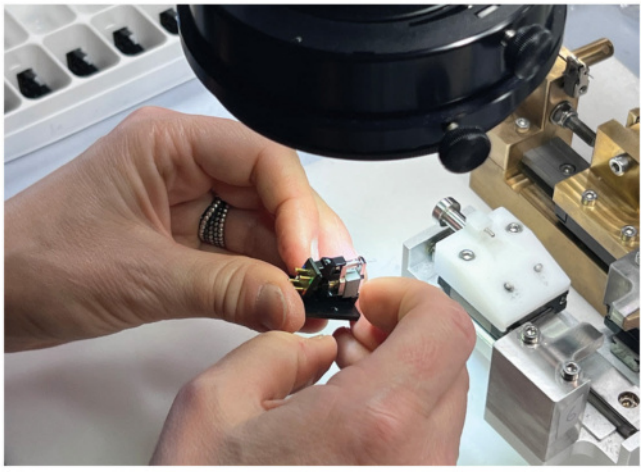
Anything that touches on acoustics in this country, or a problem with acoustics, can easily be activated and someone starts working on it. There is a very strong acoustic cluster in this country that has reached more than a critical mass, which means that it is sustaining itself and developing."

### Education Drives Innovation

This industrial strength is supported by myriad links to the country's higher-education sector, which applies to hi-fi just as much as the other areas.

Widely recognized within Denmark, these critical connections are held in the highest regard by the audio industry, which takes a very collaborative approach to working with colleagues in academia to push the research agenda and product development forward.

"It can't be overestimated," says Vilsgaard. "The audio industry is fully dependent on both research and competent employees. A good example is the development of the audio Class D amplifier during recent decades—it started at DTU, and then Bang &



Inspecting an Ortofon cartridge.

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Michael Børresen (left) and Gryphon founder (and now Audio Group Denmark partner) Flemming Rasmussen.

Olufsen grabbed the technology and created ICE Power. Today ICE Power is an independent company with almost 100 employees and a strong market position. Together with the two other Danish Class D companies, Pascal Audio and Purifi, they hold a substantial part of the world market."

Vilsgaard points to a strong academic tradition, emphasizing that most Danish universities offer both education and research in the sound field, covering most of the country and enabling opportunities for everyone from budding students to industry participants.

Ole Klifoth relates how this works on a practical level: "We can actually borrow the best anechoic room in Denmark at DTU, talk to the engineers there, book a time, and do any special measurements there," he explains.

Along with the universities, the Danish Technological Institute (DTI) plays an important role in this flourishing ecosystem. A leading research and technology company, it is built on the country's solid technical base and currently employs around 1000 specialists, working with over 10,000 customers a year from 65 different countries.

Michael Børresen of Audio Group Denmark says this his company generates significant benefits from working with DTI.

"We have a big tradition in Denmark that universities have collaborations with small and mid-sized companies. At the University of Copenhagen, for example, sound is an integrated part of being an electronics engineer.

"Universities in Denmark tend to have specialized courses in sound, and the Danish education system is very good at promoting innovation. When you go to uni, you have a broad education—you might specialize in one thing, but you know a lot about starting a company. So, when there's an excess of engineers, if you cannot get a job, you create a job. At Audio Group Denmark we do highly specialized work; we work with the Danish Technological Institute (DTI), which

**Universities in Denmark tend to have specialized courses in sound, and the Danish education system is very good at promoting innovation.**

is partly government owned but run as a private company. It offers key technologies like DLT coating and advanced 3D printing.

"We have a collaboration with DTI in the R&D space, but also use them as suppliers. We can buy time on their machines by the hour, for example. Because DTI just passes on its own expenses, this lowers the cost and is maybe less than half of what another company in another country would pay to get access to a similar machine. All companies like us can use DTI's very specialized technology, and that gives us a competitive edge which other companies may not be able to get elsewhere. This is one major reason why we can keep pushing the boundaries and stay ahead and be relevant. The technology and capabilities offered to us are wider than in most other countries."

Børresen explains that this high-tech, collaborative approach directly underpins the company's commercial strategy, and allows Audio Group Denmark to push ahead with its product development.

"This optimization of looking deep into materials is in my nature. We are different because we have this general curiosity and ask why things are the way they are. We ask

Headquarters of Dantax, manufacturer of the Raidho, Scansonic, and Gamut loudspeaker brands.

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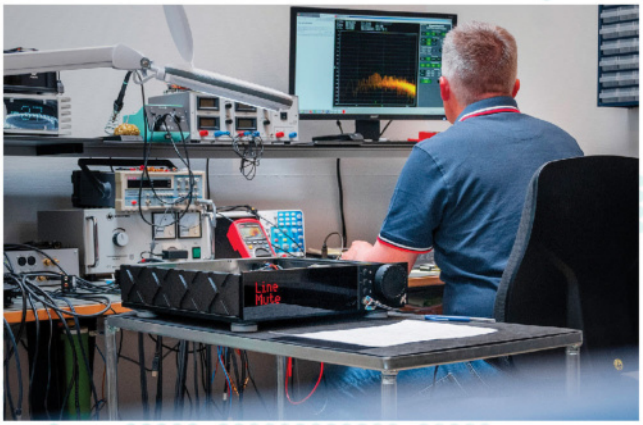


Aavik, part of Audio Group Denmark, uses cutting-edge design software.

questions and try to break down elements, asking what if we do this or that part differently? The process consists of gradual steps, gradual understandings of how things are connected. If you go into a university and ask them a question about how one thing affects another, and what are all the elements going into that, this is where we do our research.

"We work out what happens first, what happens next, and then measure the changes. What we get is a picture of what actually happens, which creates an understanding that leads to changes and improvements. You cannot just dream it up and do it the next day. You have to understand every small step."

Dantax also works with DTI, and like Audio Group Denmark benefits from the access to world-class technology and testing equipment. Morten Kim Nielsen says that Raidho's drive units, while designed and built in-house, are made in cooperation with DTI in Aarhus, using specialist equipment. "It bombards the membrane with atoms to form a diamond layer, which is similar to what they also do for other industries," he explains.

"The institute is half government, half privately funded, and really focused on productive research that can help our industry. Their approach is to conduct research using very expensive machines that help support small companies in Denmark that could not afford that equipment themselves. It enables those companies to be ever more innovative and creative, making things that just haven't been seen before."

Looking at Denmark's education system as a whole, it's clear that there are enormous and direct benefits flowing from universities into the sound industry, driving innovation. Were it not for this foundation, then organizations like DTI would not exist either—a comprehensive university system with widespread access to sound and audio engineering education is the bedrock on which the industry is built.

The technical education given to industry participants is backed up by opportunities to learn, then further opportunities to gain commercial advantages from collaboration with a specialist research sector that offers all kinds of technical services, from advice and insights to pure R&D, all well-funded using state-of-the-art equipment.

This is very much an ecosystem in action, with collaboration opportunities enhanced by the country's small size and the ability for relationships to be built between industry and academia that prosper over many years.

### Designing For The World

While education, technical expertise, and entrepreneurship are crucial components of the Danish hi-fi success story, it's also worth noting the role that the wider design and furniture industries have played.

From its beginnings in the 1920s, the Danish Modern style of furniture grew in popularity and really started to boom after 1945. Families began to embrace the functional but elegant styling in greater numbers, and export markets, supported by significant marketing outreach, took a great interest as customers in places like the U.S. opened their wallets for the new designs. Frank Lloyd Wright's legendary Fallingwater house contained the now-famous "45 Chair" by Danish architect and designer Finn Juhl. So great was the extraordinary interest from North America that the value of Danish furniture exports to the U.S. market increased around 25-fold in the 10 years after 1953.

Again, presidential politics plays a part in the story. The Round Chair designed by Dane Hans Wegner was used for the candidates in the first televised presidential debate between Richard Nixon and John F. Kennedy in 1960, helping fuel interest in Danish design, as social change swept the country. Let's not forget that Danish design was truly global at this point—one of the most famous buildings in the world, the Sydney Opera House, was designed by Danish architect Jørn Utzon in the late 1950s.

**The technical education given to industry participants is backed up by opportunities to learn, then further opportunities to gain commercial advantage from collaboration.**

However, the popularity of Danish design declined in the U.S. from around the mid-1960s, leading to fewer exports and revenue challenges for Danish manufacturers. The Copenhagen Cabinetmakers' Guild Exhibition, an annual furniture exhibition that had promoted Danish design since 1927, held its last event in 1966, after a weakened industry could no longer support it.

This timeline is particularly interesting, because it suggests that cabinetmakers in Denmark were suffering through a tough patch just as a new generation of local loudspeaker manufacturers started to emerge in the 1970s. The audio companies created a potential new market for the furniture specialists, and several people interviewed for this article made the link between a furniture industry hungry for new business and various loudspeaker companies being founded around the same period.

The Danes themselves seemingly never lost faith in their sense of style, which continues to boost the country's reputation and undoubtedly has influenced the country's rich history of loudspeaker design and craftsmanship with wood.

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Audiovector's Ole Klifoth summarizes: "We have a very strong furniture-making tradition. Look at a loudspeaker: It has to go into a home. For those who are interested in quality and design, form follows function. Denmark is a well-known ambassador for this.

"It's important that people are enjoying what's coming out of the speakers and also how those speakers look in the living room, compared to the carpeting and other fine furniture or artwork they might have in their homes. If we can do both—make something that is simple, beautiful, easy on the eye, and beautiful for the ear, then we have a winning formula where we actually use the tradition that we have in furniture making to accelerate a product like a loudspeaker.

"At Audiovector we do everything we can to make sure form follows function, like teardrop-shaped cabinets that are good for the sound because there are no standing waves, but which also look great." He recalls that Audiovector went through 17 different lacquer choices to get the right surface for its Italian walnut speaker finish, because "we wanted it to look like a fine desk or a dining table." His son Mads adds that the speakers are "meticulously nerdy inside, too." Dantax's Morten Kim Nielsen builds on this theme, relating how the Danish way of doing design strikes a chord with many people. "Form follows function, and seeing the beauty in simple things is our design tradition," he says.

"Denmark's design heritage is very important, especially in markets like Asia, where they are really fond of having something very high quality in design and prestige. I know that some Asian customers have come to Denmark to actually buy loudspeakers here, to make sure they are not fake.

"People recognize the small-company craftsmanship found in Denmark, where many things are still done by hand but many others are done by innovative robots. It's an interesting combination, and it's not just about manpower."

It's likely that this hard-won Danish advantage in design will remain an important feature of its hi-fi industry for many years to come. Design strength is contained deep within the country's DNA, and you only need to look at more consumer-focused brands such as Bang & Olufsen to grasp the marketing advantage good design brings.

Additionally, Denmark as a country is clearly and very strategically using design as a way to build its businesses. Among the 13 publicly funded national clusters mentioned earlier, there is a "Lifestyle & Design Cluster" that incorporates design, fashion, and furniture. Its website reveals that every year around 800 companies participate in the seminars, conferences, and courses it organizes. Working under the Ministry of Higher Education and Science, it acts as a bridge-builder between companies and research and knowledge institutions with the aim of strengthening companies' innovation and competitiveness.

### Selling Abroad

In such a small country with close ties to Europe, it's no surprise that exports are the lifeblood of the Danish hi-fi industry. Its domestic population only accounts for a small percentage of sales, with some industry observers estimating that many hi-fi companies export well over 90% of their products.

**"Denmark's design heritage is very important, especially in markets like Asia, where they are really fond of having something very high quality in design and prestige."**

This reflects the export focus of the sound industry, which, as Torben Vilsgaard, CEO of Danish Sound Cluster, points out, exports about 85% of production by value, or around 60 billion Danish kroner (U.S. $8.5 billion) from an annual revenue of 70 billion kroner (U.S. $10 billion).

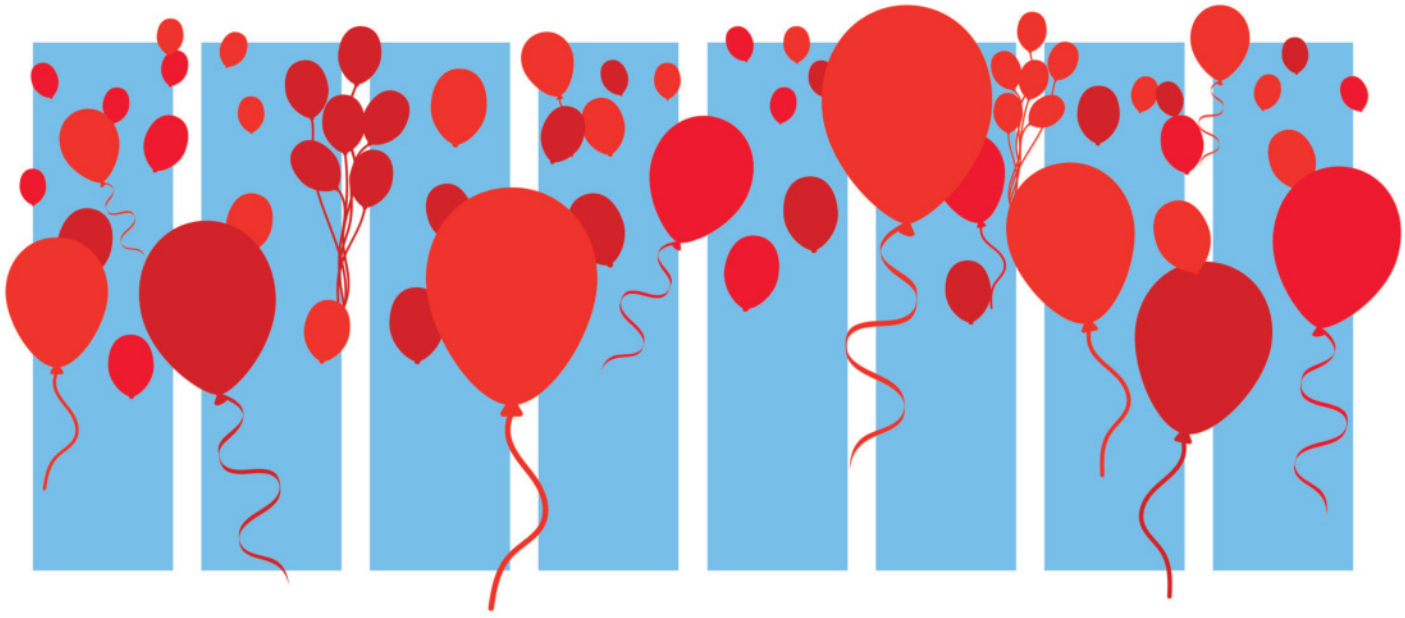
He explains that cultural and educational factors have helped promote export success. "In an open economy like Denmark's, international collaboration is part of the daily operations of most audio companies—for component suppliers, subcontractors, outsourced production, and international professionals. Exports are essential, as Denmark is a small market only accounting for a fraction of a percent of the world market.

"Denmark has always been dependent on exports in all sectors. But why are we good at it? Danish people are rather open minded, and the English language was introduced in

Audiovector loudspeakers are built by skilled craftsmen.

# “99 red balloons

## Floating in the summer sky...”



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A Raidho technician puts the finishing touches on a speaker.

the primary school in 1958. Furthermore, we joined the European Union in 1973 and got easier access to a huge European market. And again, tradition helps a lot. For the audio sector more companies have the tradition of exporting, and most Danish audio companies have a huge export share, like Bang & Olufsen and Dynaudio, but smaller companies are also strong exporters."

These sentiments are echoed by Dantax's Morten Kim Nielsen, who believes that Danes are especially adept at strategically shifting where necessary to where market opportunities take them.

"Danish people want to go abroad because it's such a small country. We always have to adapt to the outside world and be open to foreign cultures and be able to talk to everybody and make friends everywhere."

Vitus Audio is another Danish success story. Founded in 1995 by Hans-Ole Vitus, the company produces three lines of high-end electronics plus a lifestyle brand with nearly all the manufacturing performed in-house. For example, Vitus invested in an SMD (Surface Mount Device) machine that populates circuit boards with components, solders the components to the board, and optically inspects the boards. That crucial step is typically outsourced by high-end companies due to the high cost of the machine and relatively low volume of high-end companies, but Vitus believes that control over the process is vital to building quality products. The 10-employee company operates out of about 27,000 square feet (and expanding) in its factory located in a small town called Herning in central Denmark.

Gryphon is one of the most venerable of Danish high-end manufacturers. Established in 1985 by Flemming Rasmussen, Gryphon has a long history of creating cutting-edge designs, particularly in Class A amplification. Their products are characterized by battleship build quality, lavish execution, and innovative industrial design. Today, the company makes a full line of amplification products as well as loudspeakers and cables.

There are also the beneficial tailwinds created by Denmark's long history of achievement in loudspeaker innovation and design: "People tend to listen to a new customer when you come from a Danish loudspeaker company, and they want to see what you are up to. There are so many competitors, and loudspeakers are a luxury product, so you really have to come in with something special or you're out. You have to be good at creating rapport with people and being open to people and the world. Danes are known for being very trustworthy, reliable, and open-minded."

The hard yards involved in building export markets, from initial contact to sustainable revenues over many years, is clearly part of the Danish skillset. Mads Klifoth of Audiovector says that continuous effort is required on the export front, using his own company as an example of what it takes to make it on foreign lands.

"We used to have about 20 export markets, now we have 50," he says. "It's one thing to get the distributors and dealers; it's another to maintain the market and train them and make them grow in a good environment. It takes a massive amount of traveling and explanation, and in 10 years we've tripled our turnover and more than doubled our export markets. Markets like the U.S., Germany, UK, South Korean, even Australia, are important for us."

Ortofon's Christen H. Nielsen puts the Danish export experience in context by pointing out neighborly differences. "There's an old saying in Scandinavia. The Swedes are the industrialists who produce the products, the Norwegians have the ships and transport the products, and the Danes are the traders who sell the products. There's something to that. We have a culture of selling and trading similar to the Netherlands.

"For a Danish company starting exporting, the first three exports are traditionally Sweden first, then Germany, then the UK. Number four would be the U.S., probably because of the language. So, if you are able to work successfully in different markets, from culturally similar ones like Sweden's to very competitive one like Germany's, then you can sell in many other countries. If you then go to the U.S., go to the trade shows there, it's global exposure, and you reach the rest of the world.

"That is part of the inventory of this country—you set up a business, and at a certain point you have to go abroad and start exporting. The European Union has been a huge benefit to Denmark because we've had the mentality and the tradition to exploit it. The Danish market is small, so if you start producing and selling, then very soon you need to go abroad."

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Looking back on history, Michael Børresen puts this export success down to the country's centuries of trading experience, but also notes that merely being Danish is not enough in a globally competitive market.

"The Vikings were traders, dealing internationally and sailing around the world. That tradition of dealing has always been a part of Danish culture, like it is for Dutch and British culture, too. We have agriculture, but no coal, oil, or minerals. The way to survive is to refine things, and the more high end we can be in the market, the easier it is to survive.

"When you are in a high-end segment, whether in hi-fi or furniture, you cannot disappoint people. I don't think it matters what reputation you come with, if you start to disappoint people, it doesn't matter if you are Danish, Swedish, German, Australian, or American. We are in an industry where disappointment is death.

"Maybe we Danes have a slight advantage when it comes to getting in, but when it comes to maintaining connections and business relationships—again, you cannot disappoint people. If you bring out a new model, and it sounds significantly worse than the old one, then you are screwed.

"Where we are in the high end, every time you bring out a new product, it must be a significant step forward. If you are at a standstill, you are going backward."

Taking all these things into account, the other factor that may have contributed to Denmark's extraordinary export success is that Danes speak very good English. As a nation they may take it for granted, but it does help differentiate them from some other countries, perhaps by reducing cultural barriers and more easily opening doors to commercial discussions and contracts. In fact, according to a recent *CEO World* magazine article, Danes ranked fourth in the world countries that speak the best English as a second language, coming in by slim margins after the Netherlands, Sweden, and Norway.

## Quality And Pride

When asked what Danish people are like in general, Mads Klifoth describes them as "stubborn, practical, hardworking, and happy.

"They say we're one of the happiest countries in the world," he explains, and that's certainly borne out by the various standard-of-living surveys that regularly make the headlines.

While it's never easy to paint a picture of a nation that doesn't fall into simple stereotyping, talking to the people themselves can give clues about a country's character.

Reflecting on this point, Morten Kim Nielsen says that in Denmark, financial achievement and happiness do not necessarily go hand in hand.

"Danes generally don't believe they have to buy happiness," he explains. "Rather it comes from something different—loving what you do first of all and having a good work-life balance.

"Danes still work hard, and constant improvement is something Danes are good at. There's also this sense of quality and pride in the product. Danes would rather sell something they are proud of, maybe even sell a little less but have something that's true to them. That's very typically Danish—not making as much turnover as possible, as you see in some other cultures.

"Danes are not very hierarchical, which has to do with our social democracy and the fact we are all in it together. People talk to each other in the same way and are open and direct with each other.

"Danish people are more introverted than some other places. We have a subtle mentality; we are probably more private and keep more to ourselves than other countries. Maybe this relates to speaker building and doing something for yourself."

This sense of the pride taken in making high-quality products was a repeated theme that emerged again and again in the interviews for this article. To my mind, the Danish approach bears more than a few similarities to other countries where craftsmanship is still highly prized—Japan, for example, where technical expertise, design, a focus on quality, and longstanding traditions play important roles in national and business life.

However, it should also be noted that for all their outstanding technical and commercial achievements, the Danes are great music lovers. The country is among the world's leaders for music festivals, has two opera companies and several symphony orchestras, as well as a strong folk-music tradition and thriving pop and jazz scenes.

Stan Getz and Dexter Gordon lived in Denmark in the late 1950s for a few years, and there's even an organization—JazzDanmark[4]—that is funded by the Danish government to promote both jazz in Denmark and Danish jazz internationally. In other areas, electronic artists like Trentemøller have received global acclaim (check out *The Last Resort*, if you haven't already), and while less well-known, the Dane Jesper Kyd is an award-winning composer of music for some of the biggest video-game franchises out there.

Stepping back and looking at the big picture, Denmark's place in the world of hi-fi is at first glance a surprise. On the face of it, there is no obvious reason why a country of its size and population should have made such an outsized contribution to hi-fi, but when you delve deeper into the historical factors, the national culture, the entrepreneurship, and technical ability, then the reasons for the success become so much clearer.

Put simply, Denmark is like Europe's Silicon Valley for sound—a collection of enterprising companies and individuals living in close proximity, who are constantly generating new ideas and pushing the boundaries of what's possible while achieving global influence and success. It's a fascinating story, and one that audiophiles everywhere will continue to benefit from in the years and decades ahead.

**Acknowledgements**

*Along with the interviewees themselves, several generous people helped shape this article, sharing historical and industry facts, sources of information and personal insights that contributed enormously. A special thanks goes to: Leif Johannsen, Chief Officer of Acoustics and Technology at Ortofon; Mark Döhmann of Döhmann Audio; and Geoff Haynes of HeyNow Hi-Fi in Melbourne, Australia.*

1. 'Danish Loudspeakers: 100 Years' is at: audioxpress.com/files/attachment/2683
2. Analysis of the Danish Sound Industry 2022: danishsoundcluster.dk/wp-content/uploads/2023/01/221102_report.pdf
3. Listen to the sounds of Mars here: dpamicrophones.com/mars-rover
4. JazzDanmark homepage: jazzdanmark.dk/about-jazzdanmark-0

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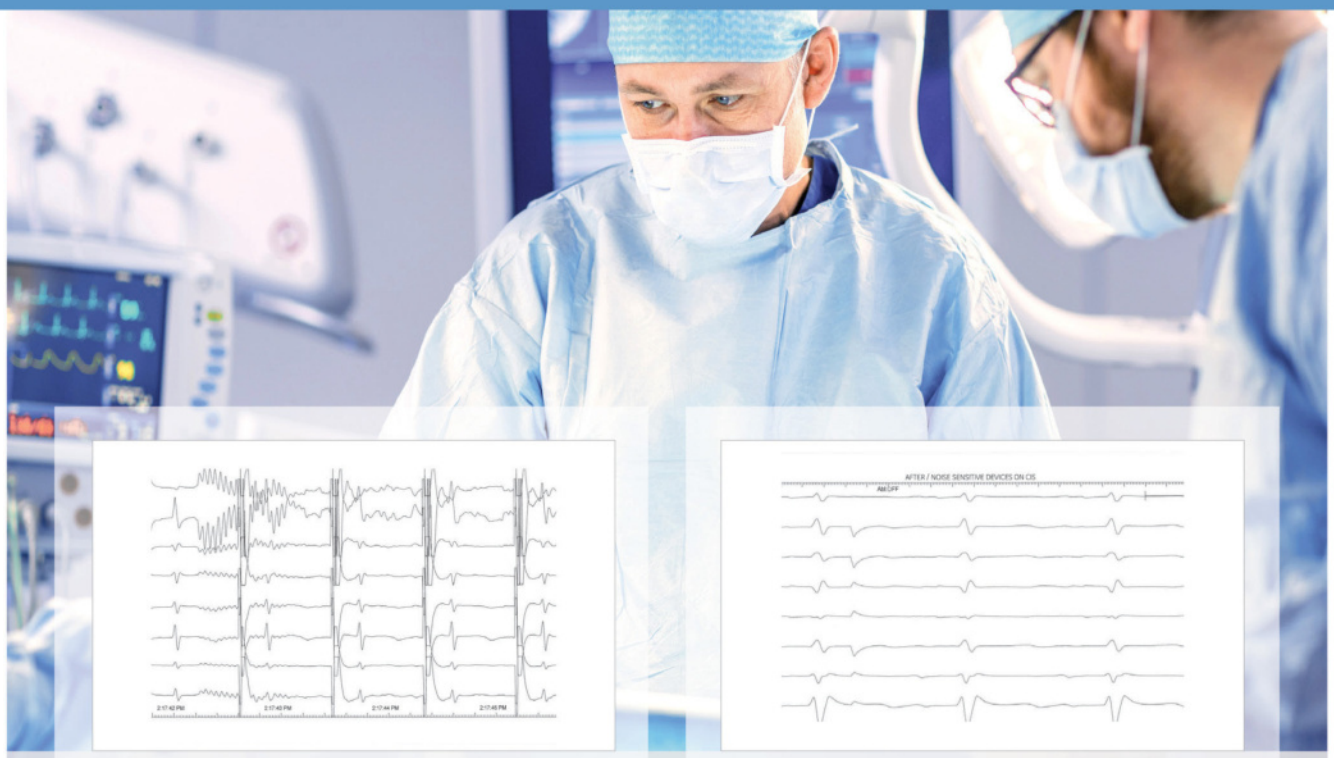

**COMPARISON BEFORE: Screen 1**
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***~ Dr. Kent Morris, Electrophysiology Lab Director:***
***Norton Health Hospital, Louisville, KY***

# CH Precision P10 Phonostage

## Swiss Neutrality

Michael Fremer

**In 2019, when I first visited Savimec SA, CH** Precision's Le Locle, Switzerland, metal-fabrication facility, the stack of machined chassis bases for the company's new M10 amplifier shouted, "This will be a *big* product!" My estimate of two feet front-to-back turned out to be 4 inches off, but that's still plenty big. The 10 Series introduction, May 2nd, 2019, was two days before the May 4th Savimec visit, but I was traveling and missed the announcement. The M10 reveal a few days later at Munich High End 2019 made clear the scale of this almost foot-tall amplifier, twice that including the external power supply.

I reviewed the more typically sized CH Precision P1 phono preamp in 2017 and bought it, along with the X1 outboard power supply that took its already impressive sonic performance to an even higher level.

Six years later, I still own the P1/X1 and consider it a reference-quality product, as well it should be for a total of $48,500. Its three independently configurable inputs make it audio-reviewer-friendly, but this one wouldn't sacrifice the slightest bit of performance to get convenience. Vinyl playback is not about convenience.

The P1 is a "dual-monaural" design, but you could also buy it configured as a four-chassis *fully* dual-mono phono preamplifier with each channel's signal-processing circuitry and inboard power supply housed individually and accompanied by its own outboard X1 auxiliary power supply. I got to experience that during the P1 review, and it upped the sound a few more notches, but the cost and the number of shelves it occupied were more than I could handle. I later heard from more than a few fortunate four-box owners, and all were more than satisfied with their purchase. One chided me for not going "the full Monty." Those P1 owners can again do the four-box dance with the new P10 reviewed here.

The P1 is among a handful of the most "non-sounding" audio products I've ever reviewed or (not) heard. I'm satisfied that it fully expresses the performance potential of the many cartridges I've used with it, whether mm, mi, or mc, without imparting a detectable sonic character upon any of them. It's a reliable cartridge-reviewing partner.

The P1 doesn't add "warmth" or "cool" or any easily describable sonic quality, positive or negative—and I've been listening to it now for six-plus years. (Lovers of a warmer, harmonically enriched tube sound *might* call it cool, but I wouldn't.) I can't point to any obvious weaknesses or shortcomings among the usual audiophile checklist items, but I certainly could go on about its strengths, which I won't because this is a review of the new P10, CH's attempt to better the P1.

Happily, the P10 is housed in a P1-sized chassis of the same high-quality Swiss construction and not in an M10-sized one, though unlike the P1, for which the outboard X1 power supply was an option, the P10's second chassis is mandatory. It supplies all the power.

### Yes, But What Do You Do For An Encore?

CH Precision's new P10 is an evolutionary, not a revolutionary product and derives from the same design strategies found in all CH products, including the P1: "ultra-short, fully discrete, fully complementary signal paths combined with sophisticated software-based control systems."

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- Jacob Heilbrunn, *The Absolute Sound*, September 2023

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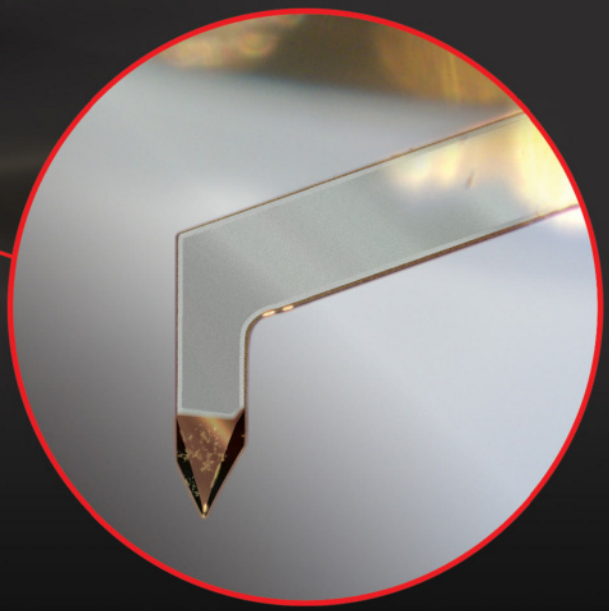

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**MM/MC voltage-sensing inputs:** Input impedance variable from 100k ohms to 5 ohms; gain +41dB to +74dB in 3dB steps, @1kHz (on single-ended output; +6dB on balanced output)
**Playback EQ accuracy:** ±0.1dB
**EQ curves:** RIAA, EMI, Columbia (LP), Decca (London), DGG (Teldec), NARTB (NAB), Capitol/AES, and Philips
**Ultrasonic**: Neumann pole at 50kHz can be engaged with any EQ curve
**Subsonic:** Anti-rumble 2nd-order high-pass filter at 7Hz can be engaged with any EQ curve
**User control:** Five tactile push buttons, CH Control Android app
**Display:** 800×480, 24-bit, RGB AMOLED
**Dimensions:** 440mm x 120mm x 440mm (main body); 440mm x 132mm x 470mm (overall including connectors and feet)
**Weight:** 20kg (audio unit); 23 kg (power supply)
**Price:** $76,000 (optional EQ curves, $2250)

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**Power amplifier:** darTZeel NHB 468 monoblocks
**Phono preamplifier:** CH Precision P1/X1PSU,
**Turntable:** OMA K3
**Tonearms**: OMA Schröder K3 and SAT CF1-09
**Phono cartridges:** Lyra Atlas Lambda SL, Audio-Technica AT-MC2022, Ortofon MC Diamond,
**Cable and interconnects:** AudioQuest Dragon & TARA Labs The Zero Evolution & Analysis Plus Silver Apex & Stealth Sakra and Indra (interconnects). AudioQuest Dragon and Dynamic Design Neutron GS Digital (A.C. power cords)
**Accessories:** AudioQuest Niagara 7000 (line level), CAD Ground Controls; AudioQuest NRG Edison A.C. wall box and receptacles, ASC Tube traps, RPG BAD, Skyline & Abffusor panels, Stillpoints Aperture II room panels, Stillpoints ESS and HRS Signature stands, HRS XVR turntable base, Thixar and Stillpoints amplifier stands, Audiodharma Cable Cooker, Furutech Record demagnetizer, Orb Disc Flattener, Audiodesksysteme Vinyl Cleaner Pro X, Kirmuss Audio KA-RC-1 and KLAUDIO KD-CLN-LP200T record cleaning machines, full suite WallyTools

With its rich, "at the push of a button" feature set and both current- and voltage-based gain circuits, the P1 fought and won the phono preamp revolution. At least it did for me. The P10 is more of a "next-gen" design that consolidates the P1's sonic and technological gains and attempts to further refine both, while adding some new and extremely useful features, including a handy, multi-function remote control. The P1 and P10 exteriors appear nearly identical, but inside the P10's circuitry and layout are both all new.

The P10 includes four inputs instead of the P1's three. Two are single-ended and balanced transimpedance inputs for use exclusively with low-output, low-internal-impedance mc cartridges, and two are more typical single-ended and balanced voltage-gain-based inputs that can be used for both mm and mc cartridges. The transimpedance mc inputs allow for gain settings from +56dB to +77dB in 3dB steps. The voltage-gain mm/mc inputs offer from +41dB to + 74dB in 3dB steps. All at the push of a few buttons. Of course, there are no transimpedance loading options.

The mm/mc loading options range in very small steps from 5 ohms to 100k ohms. The CH "Loading Wizard" feature used in conjunction with a supplied test record lets you see the response flatness for a given load on a graph that appears on the front-panel screen. You can change and load and immediately see the graph results. It's a useful and unique feature that helps make choosing the correct resistive load less of a subjective chore—unless your goal isn't flat response.

Having both voltage and current inputs provides a convenient way to try both, because which works best with a given cartridge is not as well ordered and predictable as a cartridge's electrical characteristics might predict. Unused inputs can be disabled in the menu system.

CH found room for the extra input on the already crowded rear panel real estate by ingeniously repositioning the RCA and XLR jack locations to make better use of the available space. As on the P1's rear panel, the P10's features single-ended, balanced, and 50-ohm BNC jack outputs, Ethernet and USB ports (USB for firmware upgrades only), and chassis and signal ground banana jacks. The ground-lift switch is new.

During my post-Munich High End 2023 CH factory visit (on *The Absolute Sound*'s YouTube channel), I asked both CH CEO Florian Cossy and an engineer who worked on the P10 project what they were hoping to accomplish in terms of upgrading the performance of an already impeccable-sounding and mea-

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suring product. Both said they had but one major goal, which was to improve on the P1's already outstanding signal-to-noise ratio, which CH measures as EIN (equivalent input noise).

One way to accomplish the lower-noise goal, they thought, would be to isolate the power supply by placing it in a separate enclosure, kept at a distance with a pair of umbilical cords: one for analog DC and one for control DC. The P1's power supply is inboard. Placing the power supply outboard also freed up a great deal of internal space that allowed the engineers greater layout flexibility in their lower-noise quest.

The P1's measured current-sensing input spec is: <-135dBu without X1; <-138dBu with X1/1-ohm termination; gain +70dB, 22kHz bandwidth.

The P10's is: <-144dBu/1-ohm termination, 22kHz bandwdith any gain. That's a significant 6dB noise-floor improvement to what already is a very low-noise product!

"Then how do you explain what I heard during the P1/P10 comparison the other day at the Munich show?" I sputtered. I'm paraphrasing here, but their response was along the lines of, "We don't know! It surprised us, too!"

The demo, which included both P1/P10 two- and four-box comparisons using the revelatory Analogue Productions double 45rpm reissue of *Dusty In Memphis* (APP 8214-45), originally released in 1969, produced major, easily audible, and quite surprising differences in detail-revealing midband transparency, soundstage width and depth, imaging specificity, and especially in what I call image textural and transient suppleness. The differences were not subtle, nor were the improvements minor. The ability to follow individual instrumental lines of even the most incidental background musical elements became effortless but not at the expense of the picture's overall cohesion, which also improved. The lower noise floor (which at that time I did not know about) expressed itself in this recording more as studio air and atmosphere and less as a blacker background.

*By comparison*, what I thought sounded convincingly lifelike through the P1/X1, became cardboardy when confronted with this new, more liquid, transparent, and *vivid* presentation. The picture was definitely not "tube-like," but it was kind of "tube-ish" and just plain floated hologram-like on the now seemingly audible recording-studio air. It had a heartbeat, whereas the P1 delivered an impressive document. If that sounds like I'm selling the P1 short, I'm not. I'm just selling the P10 long, so profound and surprisingly different and better was the latter.

The centerpiece of Chips Moman's legendary American Sound Studios in Memphis where *Dusty In Memphis* was recorded (it folded in 1972, was torn down in 1989, and replaced with a Dollar Store) was a rich-sounding Universal 610 vacuum tube-based console through which passed hundreds of classic recordings from The Box Tops' "The Letter" (the "jet plane" that ends the tune was the studio vacuum cleaner) to Neil Diamond's "Sweet Caroline."

**Happily, the P10 is housed in a P1-sized chassis of the same high-quality Swiss construction and not in an M10-sized one.**

By the time of this recording, the studio had a 4-track Ampex and an 8-track Scully. When you hear a drum kit isolated in one channel like it is here, it often indicates a 4-track recorder and a need to conserve track space, but with everything else so nicely spread out across the stage, one can't be certain. On tracks like "Son of a Preacher Man," there's a lot going on in a relatively small room—horns, Fender Rhodes, background singers, strings, rhythm section, and, of course, Dusty's voice, though that was supposedly recorded later in New York.

Through the P1 it sounded recognizably fine, with individual elements effectively mixed yet easily identifiable. With the P10, within seconds of the stylus hitting the record, the room opened up, the studio backwall appeared, putting the drum kit in a defined space well back from where it appeared in the previous play, the strings and background singers became neatly layered front to back and arranged in an orderly array across the stage in a well-defined space, and a textural grace suffused the strings and voices that added weight and presence to the images and made them sound more lifelike. Springfield's voice—wherever it was recorded—appeared well in front of the other musicians with greater three-dimensionality and with more head and body attached to throat. Also notably improved was the bottom end, which on the various demo records played afterward became nimbler, better extended, and definitely more clearly defined.

It wasn't a "hmm, that's somewhat better" moment. It was more a "wow, that's *amazing*" one, in which the entire presentation—everything that had already been plenty good—was fundamentally and completely *better*, though cut from the same high-precision cloth—which is why a

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few days later in the factory I sputtered when the engineers told me about the lower noise floor goal and their inability to explain at the time why *everything* sounded so much better. Knowing these guys, I'm sure at some point they'll figure out how to measure and explain it.

### The Home Install

CH's International Sales Manager Kevin Wolff arrived in early July to install the P10. There'd been a circuit revision since the review unit was shipped, and it required him to swap out modular-board/rear-panel jack assemblies that had also been shipped in advance of his visit. While he did that, I played a selection of records, and then we removed the P1/X1 from the system and replaced it with the P10.

The umbilical, hard-soldered to the power supply, was not long enough to go where the X1 had been, so it required some gear swapping. If you buy a P10, be sure to order it with a sufficiently long umbilical set!

One of the records was a recent reissue of Blossom Dearie's eponymous album originally released on Verve in 1957. This edition was pressed at Jack White's Third Man Pressing plant and mastered at Sterling Sound in Nashville, lacquers cut by Ryan Smith and Joe Nino-Hernes (probably from a digital file as was Kevin Gray's for VMP a few years ago). The improvement in Ray Brown's bass was immediately noticeable: the transient attack was firmer and cleaner—kind of like the sonic differences between Kevin Gray's old AcousTech mastering system at RTI and his new Cohearent Audio chain—with more finger in the pluck, better sustain, greater "elasticity." Not even close, and the P1/X1's bass performance—its rhythmic authority—was and is among its most attractive attributes. The rest of the Norman Granz assembled combo—Herb Ellis on his Gibson hollow-bodied ES-175 guitar, Jo Jones on drums, and Dearie on piano produce an intimate, breezy, cabaret/small-club feel that might remind you of Norah Jones' debut album. Improved sound fresh out of the box, still cold and not broken in.

After a few months experience with the P10, I found it clear that, while you probably don't want to leave it on 24/7, it needs a good half hour to 45 minutes before it's ready to fully deliver the sonic goods.

A few other features: a choice of global or local feedback, an improved "wizard" experience for both loading and gain, a subsonic filter, an all-new circuit featuring three separate gain stages, and two-stage passive EQ with seven optional EQ curves: EMI, Columbia (LP), Decca (London), Teldec (DGG), NARTB/NAB, Capitol (AES), and Philips, all of which you can abuse as tone controls to convince yourself that all of these labels used proprietary curves well into the stereo era when only Teldec actually did, or as one Columbia Records veteran mastering engineer told me when I said that some people think Columbia used their own curve into the 1980s, "What are they on, *crack*?"

You can also easily add wherever you wish, the so-called Neumann "4th pole" ("ultrasonic time constant around 50kHz") supposedly designed to curtail ultra-high frequency amplification during disc cutting that must be compensated for in playback, though I swear, no such pole exists and implementing it probably does more bad than good, but that's a discussion for another time!

**I found it clear that, while you probably don't want to leave it on 24/7, it needs a good half hour to 45 minutes before it's ready to fully deliver the sonic goods.**

*The Concert Sinatra* from 1963 is an "odd duck" in the Sinatra catalog featuring Frank backed by a symphony orchestra, arranged and conducted by Nelson Riddle. It was their first recorded collaboration. Frank wanted large-space natural reverb, so it was produced on four stages of Goldwyn Studio's Soundstage 7 to accommodate the large group and was recorded to 8 tracks of 35mm tape. Only an original (Reprise R9 1009) with Frank's face on the "deep groove" label will do, and then you can be transported to the space shown if you fold open the gatefold cover. Frank's voice has a full-bodied richness only a large space can provide, which is mostly absent from his studio recordings, though, of course, those have other appealing sonic qualities. On "Old Man River," he hits what is probably the lowest and longest note Sinatra ever recorded and one that amazes every play.

A phono preamp or cartridge that adds midbass warmth can easily overload the vocal and muddy it up with the room reverb. Sinatra's vocal presentation on this album will sound muffled throughout under those conditions, especially as he descends to the lowest "Old Man River" note. The P10/Lyra Atlas Lambda SL combination delivered cleanly and distinctly both Frank's rich "light baritone" and the room reverb.

I started playing various mono versions of "Like a Rolling Stone" from *Highway 61 Revisited*—original, MoFi double-45, and the Sterling Sound cut box set. I'd played all three of these versions a few weeks before the P10 install, to help a friend find the best version to buy. Bruce Langhorne is on tambourine. This time, for the first time, I swear I could hear when Langhorne hits the tambourine with his hand and when he hits it against his body, which produces a more muted jangle. I've never heard that! Not that I was listening for it. The P10 effortlessly and naturally allowed each musician to be heard, followed, and appreciated throughout the song. The Sterling Sound box set version was best. It's available separately from the same master pressed at Record Industry for Music On Vinyl.

Final experiences: Two records arrived as I was wrapping this up—The Electric Recording Company's reissue of *Monk's Music* recorded in mono June 26th, 1957, and Chasing The Dragon's all-analog production *Scheherazade* performed by The National Symphony Orchestra conducted by Anthony Inglis.

For these I compared the current and voltage-amplification inputs. Both produced the same delicate, transparent "non-electronic" presentation, but for the Monk I preferred the voltage input and for the Rimsky-Korsakov the current input. Nice to have

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both. The Monk, in a septet setting with Coltrane, Coleman Hawkins, Wilbur Ware, Art Blakey, Gigi Gryce, and Ray Copeland, sounded as if it could have been recorded yesterday, so vibrant, three-dimensional, and "in the studio" transparent was the presentation, with each musician, though recorded in mono, easy to follow. The "Scheherazade," recorded in a relatively small former church, produced a fifth-row center seat experience with startling macrodynamic expression—and I mean more than a few times explosive SPL bursts pushed me back in my seat.

## Conclusion

Speaking of being pushed back in one's seat, the price for all this sonic and technical wonderment is $76,000 (EQ curve options excluded). Though the P1 and the P10 look similar, their feature sets are very different. The remote control allows you to switch EQ curves from your seat, to go from stereo to mono, to go from local to global feedback, to invert absolute polarity, to change inputs, and essentially be the master of your analog fate without having to get up. Nonetheless, some of these options work way better from the listening chair, and now you can have them.

As for the sound. The differences between the P1 and P10 are not subtle, nor is the improvement "incremental." Nor have I heard a phono preamp remotely as musically sophisticated and fulfilling as the P10. The P1 was/is a very accomplished product, but the differences between the two were obvious and mind-boggling under Munich show conditions, and they are even greater listening at home.

I can honestly say to you that every record I played with the P10 installed presented new musical pleasures from the most familiar records. Listening to *Beatles For Sale*, for instance, the original Parlophone pressing of which I've been playing for *almost 60 years*, delivered surprises on just about every track, and where there were none there was at least an ability to hear into known events with new and highly pleasurable understanding.

Most of the vocals on that record and other Beatle albums are double tracked, and The Beatles were masters at it, to where, if you don't pay close attention, you might not even notice. With the P10 you can't help but hear each of John's vocals laid out before you with an ease that lets you appreciate separately each effort. That may sound unimportant in your musical world, but whatever that world may be, visiting it through the CH Precision P10 will take you on musical adventures into uncharted territory you may not have thought even existed within your most familiar records. Boy, does that sound like hype, but it's what I experienced every listen and I stand by it! tas

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# PrimaLuna EVO 100 Phonostage

## A Sonic Masterpiece

Dick Olsher

**Tubes ahoy! The EVO 100, PrimaLuna's first stand-**alone phonostage, posits a critical question: Are tubes always the answer? In this case, PrimaLuna's response is positively yes. The EVO 100 accepts both mm and low-output mc cartridges, and both gain stages are tube based. In particular, a tube-based mc gain stage is very unusual. It takes about 22dB of voltage gain to amplify a nominal mc output of 0.3mV to a mm level of about 4mV. Rather than use the conventional approach of either a step-up transformer or a solid-state circuit for generating an additional 20dB or so of gain, PrimaLuna opted for a 6922 dual triode gain stage (one tube per channel). Combined with the 40dB of gain generated by the mm stage that totals a gain of 60dB—more than enough for any mc, considering that line preamps typically offer at least another 10dB of gain. The 6922 sections are wired in parallel for reduced noise: The grid is grounded, and the mc signal is fed to the cathode while the output is taken from the plate. This type of circuit is ideal for an mc gain stage because of its low input impedance, wide bandwidth, and high gain. A nice feature is the front-panel adjustable mc input impedance over the range of 50 to 1000 ohms in five discrete steps. In order to maintain a low noise floor, the tubes are decoupled from the chassis using rubber dampers, and the entire mc section is tucked away inside the chassis, only accessible through a small panel on the back side.

The mm gain stage is selectable on the front panel, which allows the input signal to bypass the mc gain stage. It uses a pair of 12AX7 dual triodes per channel. This is where the inverse RIAA EQ takes place. The EVO follows the classical approach of using an active EQ circuit based on feedback loops. The popularity of passive RIAA EQ took off in the 1990s, probably due to its simplicity of design. Unfortunately, some designers have even gone so far as to deprecate the active approach. But classics such as the Dynaco PAS-2, Marantz 7, and Audio Research SP3a can't be wrong. A nice feature is the selectable mm input capacitance of either 47 or 100pF. Which is right depends entirely on the cartridge used as well as the capacitance of the tonearm cable. As with all things audio, it pays to experiment. I should point out that the 12AX7 tubes are sourced from Psvane and the 6922 are Electro-Harmonix. These are matched and selected for low noise. All the tubes are shielded with aluminum tube shields to reduce radio frequency and other forms of electro-magnetic interference, an important design aspect when dealing with low-level signals. While it may be tempting to engage in tube rolling, I would strongly advise against doing so in the context of a phonostage. The EVO sounds great right out of the box following a basic break-in period of about 50 hours; so even from my perspective as an inveterate tube roller, I see no need to tinker.

Much of the unit's weight is tied up in a massive power transformer, which even incorporates a large 40-Henry choke for the power supply's filter network. The power supply is a tube lover's thing of beauty. First of all, there's full-wave tube rectification via a pair of 5AR4 rectifiers, each of which is wired in parallel. The power-supply circuit includes solid-state protection diodes against an internal short, as well as current-limiting resistors. The 5AR4 happens to be my favorite tube-rectifier type due to its low voltage drop and preservation of natural musical textures without yielding an excessive tube flavor. I can't at the moment think of another phonostage that uses tube rectifiers; everyone else in the universe seems to be wedded to solid-state diodes. I happen to agree with the PrimaLuna design team that tube rectifiers are more musical sound-

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**Tube complement:** 2x 5AR4, 2x EL34, 4x 12AX7, 2x 6922
**Dimensions:** 11" x 7.5" x 15.9"
**Weight:** 27.9 lbs.
**Price:** $3695

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**Line preamplifier:** D Sachs Model 2, Topping Pre90, Velvet touch, Lector Audio ZOE
**Analog source:** Kuzma Reference turntable; Kuzma Stogi Reference 313 VTA tonearm; Clearaudio daVinci V2 MC Phono Cartridge; Technics SL-7; Revox B795
**Cable & interconnects:** Acrotec & Kimber KCAG interconnects; Acrotec 6N, Analysis Plus Oval 12, & ChromaLeaf Mogami speaker cable
**Accessories:** Sound Application CF-X & TT-7 power line conditioners; Herbie's Audio Lab tube dampers

ing, and this in fact has been a major factor in my attraction to PrimaLuna gear over the years. And how about those EL34 power pentodes used as voltage regulators—I never thought I would run across power tubes in a phonostage. They are used to squeeze the last bit of AC ripple out of the filtered DC supply, and as such should last for many years. Much effort has gone into making the power supply clean, stable, and reliable in order to reduce the unit's noise floor, increase the overall signal-to-noise ratio, and result in trouble-free operation for many years. And yes, all the preamp tube filament supplies are DC and are also regulated. Kudos to the design team of Herman van den Dungen and Floyd Design's Jan de Groot for crafting something very special.

The EVO 100 is outfitted with a decent complement of controls and features, such as a mute switch and front-panel mc-impedance selection, and I should also mention the DC offset-killer in the power supply. However, in an effort to make the EVO affordable, at least by high-end standards, some features such as a second phono input, mono switch, and balanced outputs were omitted. Most of the unit's cost is reflected in the superb power supply and passive part selection, which includes Nichicon electrolytics, Duroch tin-foil caps, and high-quality ceramic tube sockets.

First in the queue to test drive the EVO 100 was my Kuzma Reference Turntable with the Clearaudio da Vinci V2 mc. I settled for a 200-ohm input impedance-setting on the EVO after trying a few other options. In my experience, the matching line preamp can substantially impact the overall sonic impression, sometimes positively due to synergy but also adversely. It was my plan to parade a number of line preamps into the system in order to assess the performance of the EVO 100 in various contexts. I started off with the Don Sachs Model 2, which is also tube rectified and allowed me to experience a pure-tube signal path all the way to the power amp. The result was absolutely delicious: buttery, sumptuous midrange textures coupled with precise spatial resolution. Massed voices were transformed from a homogeneous spatial blob into discernible spatial outlines. Female vocals were given full emotional scope, a result of clarity of phrasing and brilliant resolution of volume and pitch modulations. There was a lyrical quality to the midrange that translated into gorgeous violin tone and intensified enjoyment of my favorite violin concertos. Bass lines were well defined and, even more importantly, so was the impression of a solid orchestral foundation. The lower midrange, especially the orchestral power range, the octave from 200 to 400Hz, is typically difficult to get just right. The sensation of tonal gravitas tends to be elusive, as many modern preamps produce a lean tonal balance. This combo nailed it with consummate conviction.

Since the Don Sachs line preamp could hardly be described as neutral, I next decided to give the Topping Pre90 a try. This preamp has been highly rated in some quarters based mainly on its superb measured performance, specifically vanishingly low distortion products. It certainly impressed initially, being highly transparent, dynamic, and exceedingly resolving. In fact, there was more low-level detail to behold, and bass lines were bet-

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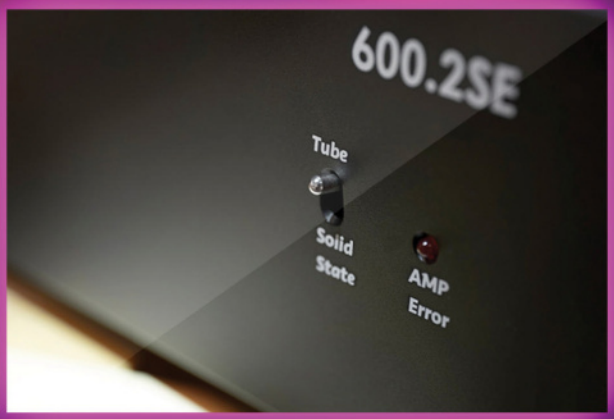

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ter defined. Transient speed was superb and harmonic textures were pure and unadulterated. So why did I become disenchanted with it in the long run? Some of the tube virtues I crave were missing. Notably, soundstage depth was diminished, and image outlines lost 3D palpability. Most distressingly, tonal color saturation was off. Even a simple SRPP tube preamp such as the Velvet Touch sounded more compelling musically.

The final preamp to be rotated into the system was the Lector Audio ZOE. HP was right about it many years ago. It is capable of unleashing stupendous macrodynamics. Designer Claudio Romagnoli made the ZOE into a tube roller's delight capable of accepting a variety of preamp tubes. I settled on the 6BK7, a high-transconductance tube much like the 6922/6DJ8 but rather inexpensive to source these days. The EVO 100 continued to impress: Orchestral tutti scaled impressive dynamic peaks without any discernible sense of strain or compression.

In every case, the sonic character of the line preamp shone through, meaning that the EVO 100 did not impose any heavy-handed coloration on the presentation. It wasn't tubey in a pejorative sense—it didn't obstruct detail resolution or blunt transient speed. It clearly improved the rhythmic ebb and flow of the music and nudged harmonic textures toward the real thing.

One of the main reasons I enjoy reviewing phonostages is that I get the chance to roll out some of my favorite linear-tracking 'tables in my collection. These include the Technics SL-7 and the Revox B795, which always deliver a tantalizing time-machine trip back to the early 1980s. The former is outfitted with an Audio Technica AT-152LP mm cartridge sporting a Vivid line-contact stylus tracking at 1.5g. The Revox TT is set up with an Audio Technica 440MLa. Line-contact styli work very well in a linear tracker due to their negligible tracing distortion. With the EVO set to mm mode, these analog front ends sang sweetly with plenty of detail retrieval. In particular, the SL-7 exhibited a wide frequency response that made me forget about super-expensive mc cartridges. The synergy with the EVO 100 was that good. It just coaxed the best possible sound from every analog front end I matched it with.

For those of us addicted to tube sound, the EVO 100 is a godsend. It is easy to integrate into a system, serving up a luscious midrange without losing sight of detail, as well as image focus and 3-D soundstaging—tube gear's traditional strengths. This superlative phonostage is bound to elevate your vinyl playback experience to new heights. It has certainly magnified my enjoyment to the point where I just could not stop listening to vinyl. I can't think of higher praise than that. It is so good that, for now, I see no reason to spend more on a phonostage. It is without a doubt a sonic masterpiece!

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# dCS Bartók APEX DAC

## Stirring the Emotions

Neil Gader

**Data Conversion Systems, Ltd, better known in** the audiophile community as dCS, is a company that doesn't rest on its laurels. Thanks to its R&D team, something is always brewing. In addition, the modularity of its designs, constantly advancing software development, and aggressive factory support ensure that the life of its components is long—six to ten years in most instances. As owners know, updates are a way of life with dCS, thus even the idea of a final, fixed-in-stone production model is, in and of itself, a relative one. (For example, when the Bartók 2.0 software update was introduced, DSD upsampling was improved and new filter options were added including DSD128 capability.) Then along came APEX. This was not just an "over-the-air" software update but a full-blown physical hardware swap that required a return to dCS America. So, as a Bartók owner, I knew this was coming. But what is it?

A bit of backstory. I reviewed the Bartók in Issue 300, December 2019. It was the cover story. This one-box affair remains the most affordable digital music player in the dCS lineup and slots in just below the $32,800 Rossini player ($36,800 w/transport), which colleague Alan Taffel reviewed in Issue 285.

As dCS watchers will recall, Bartók was the replacement for the vaunted Debussy DAC. Critically, what Bartók added to the mix was network streaming capability. Further, it sported, at the time, the latest dCS Digital Processing Platform and Ring DAC technology, which were originally developed for the Rossini series. Capabilities included streaming over Ethernet from a NAS drive or from online music services such as Tidal or Spotify or via AirPlay, as well as full MQA decoding and rendering, plus a much-improved interface and Mosaic app.

Bar none, Bartók was and still is the most impressive standalone DAC, network streaming or otherwise, that I've had in my reference system. I wrote at the time that Bartók "has a characteristic that is unique from any DAC I've reviewed. It produces the body of a performance on more levels and to a degree that I've not experienced. By 'body' I mean the dimensional expression and weight of venue ambience, amplitude, and acoustics and the physicality of musicians on a stage." These particular words came back to haunt me in the course of this evaluation.

In 2022, a robust hardware advancement called APEX was introduced for Vivaldi and Rossini. With the goal of reducing noise and distortion and increasing linearity (by over 12dB, according to dCS), this was a deep under-the-hood upgrade. Except for the resistor array, which remains unchanged, the latest generation Ring DAC hardware is all new and includes a completely reconfigured main Ring DAC circuit board with individual transistors on the board replaced by compound pairs (see Sidebar). There have been modifications to the reference supply that feeds the Ring DAC resulting in lower output impedance. Additionally, there's an all-new analog output stage. Further, the team enhanced the filter, summing, and output stages of the Ring DAC.

In 2023, APEX became part of current-production Bartóks and more recently was made available to early-generation owners as an upgrade. The cost is a heady $9000 plus shipping. Obviously, it requires a factory return that is coordinated by the U.S. distributor. However, owners that make the jump to APEX can be satisfied that they own a component identical to the new model in every specification, including the APEX nameplate on the back panel.

In general, I'm not easily seduced by the lure of "new and improved" audio. But, yes, I was interested. Obviously, APEX was a lot more than just nibbling around the edges. This was a full-fledged rethink and redesign. Still, it ultimately had to prove itself in the field or not at all.

Fortunately, before I plunked down a dime, John Giolas of dCS USA afforded me the opportunity to audition a newly minted Bartók APEX side-by-side with my own first-gen Bartók.

While awaiting the APEX comparison sample, I kept asking myself, "Where is dCS going with this? What could they possibly be after sonically?" I didn't have long to wait to find out. Within days Bartók APEX arrived and in short order was warming up next to my original Bartók. My initial sonic impressions

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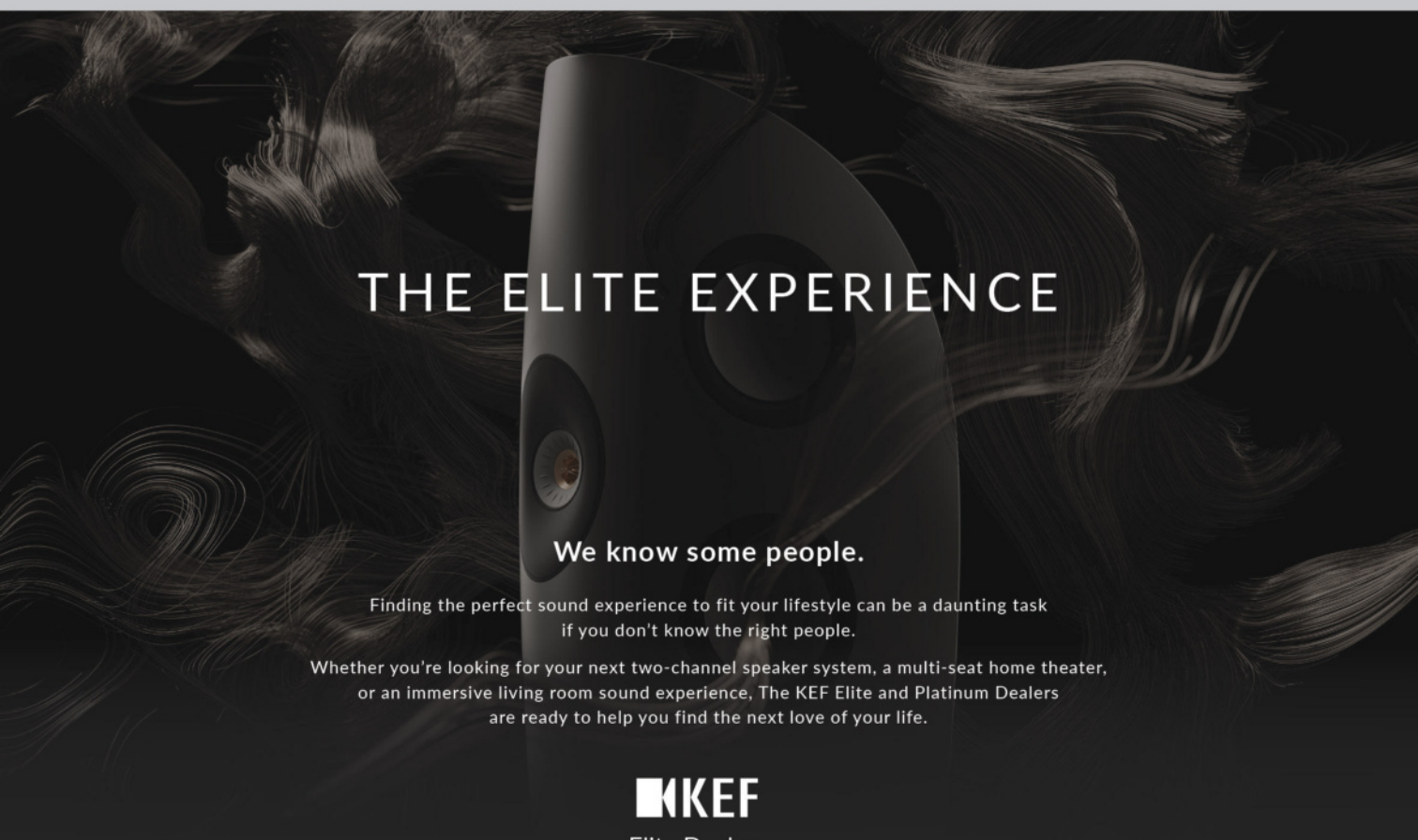

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## Specs & Pricing

**Inputs:** UPnP Network interface on RJ45 over Ethernet network; one USB-B type, one USB-A type, (2) AES/EBU, (2) SPDIF (RCA & BNC), one SPDIF optical
**Outputs:** Line, one RCA pair, one XLR pair
**Dimensions:** 17.5" x 4.6" x 17"
**Weight:** 36.8 lbs.
**Price:** APEX upgrade, $9000

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landed not as a series of head-scratching hunches or tiny question marks; they were more of a jolt. As I listened to the newly heightened harmonic complexities, shifting moods, cross melodies, and inner dynamics of Stravinsky's *Pulcinella,* I grabbed the note pad that I keep at the ready during listening sessions and jotted down my first-take summary. I wrote two words—"bartók" in small-case letters and, right next to it, with an arrow "BARTÓK!" in bold exclamatory caps. It's as if dCS had handed me an aluminum box that was a dead ringer for my Bartók but *wasn't*—one where entirely different internals had been sneaked in. Come to think of it, that is kind of what they actually did.

Yes, it sounded and performed like my Bartók (no slouch in the first place), but it was as if every recording that I revisited from my original review was brought to life in a larger venue or theater or concert hall. Ordinarily with other component upgrades I'd note differences in inner details—the micro rather than macro. The APEX upgrade seemed to impact the sound from the outside in—globally, if you will—in the form of a larger, more spatial, and airier soundstage. It was an effect that seemed grounded in the reality of "seeing" the live event, as if I had been an actual audience member. At this point, the sonic differences were coming at me from all directions—low-level detail, color density, spatiality, and enriched harmonic energy. During Holst's *The Planets*, the London Symphony Orchestra exhibited more collective weight, contrast, and light. Though it was not quite a slap in the face, I literally had to catch my breath.

In tonality and voicing, the Bartók APEX didn't change its stripes. It remained as accurate as an atomic clock. But its throat had opened further, exhibiting greater bloom, zero constriction, and wider micro/macro dynamic swings. Singers sounded more relaxed and fluid. The wider timbral contrasts and denser saturation brought notoriously difficult-to-reproduce brass ensembles to life, particularly the body of lower-pitched brass instruments like trombones. Similarly, bass viols and cellos grew more expressive and persuasive—sweeter, richer, even more acerbic and aggressive, depending on the nature of the material.

More specifically, I felt APEX removed a hint of veiling that I hardly suspected was there. I thought my original Bartók had caught all the intimacy and immediacy from Harry Connick, Jr.'s album *We Are In Love*. Connick's bereft ballad "Drifting" features a cleanly recorded concert harp backing his vocal. APEX, however, took the harp to a more tactile and expressive level. String transients were superb, and a fuller sense of dimensionality was evident.

And then there was my go-to example, the Rutter *Requiem* with the Turtle Creek Chorale and The Women's Chorus of Dallas [Selig, Reference]. I've often cited its height and depth components—the pipe organ welling up in the vast acoustic, the holographic view of singers standing on risers at varying elevations, ascending to the rear of the stage. What APEX brought forth was a greater sense of harmonic bloom and air into the soundspace around the chorus. The sound was simultaneously more immersive and the singers more precisely individuated. It wasn't about adding more edge to extract detail, low-level or otherwise. It was how the timbre and character of each voice seemed to merge as one with the soundstage and the sustain and decay of the reverberant Meyerson Symphony Center. In this example, as in many others, images grew more dimensionally distinct and substantial, as if the APEX put more flesh and muscle on the bones of each instrument. This was equally true with vocal harmonies, such as the lilting vocal blend during Indigo Girls' (Amy Ray and Emily Saliers) "Closer to Fine," the uplifting anthem about acceptance while searching for life's answers. Many will recall this 1989 chestnut was recently

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used to splendid effect in the movie hit *Barbie*. Listen to the air and delicate character of the tin whistle during a short mid-song interlude—it's beautifully defined.

The net effect of all these subtle APEX ministrations—the mantra going through my mind during this evaluation, and the result that overshadowed all else—was the continuousness and cohesion of sound. Music felt as if there was a weightier unmovable foundation supporting it and locking it down. Yet ambience was airier and "wetter" with reverberant fields of energy. Like an ultra-high-resolution photograph, the edge-to-edge expanse and focus within the soundstage were pristine. No dead spots, no softening of images at the corners. Music reproduction was seamless and layered across the acoustic soundstage as it would be in the live experience. In summary, the APEX "effect" was more than just a laundry list of subtle and not so subtle improvements. The end result was a stirring and more emotional experience of the music I treasure.

Bottom line. Is it worth it? Does the sun rise in the east and sink in the west? Let me put it another way. Yes, I could have lived in a state of blissful ignorance, satisfied, enjoying the audible glories of a terrific DAC. But after taking a deep breath and confirming my checking account balance, I purchased the upgrade to my review sample and haven't looked back since.

Getting down to nickels and dimes, current pricing for the Bartók APEX is $20,950 ($22,950 with Class A headphone amp). My Bartók listed at $13,500. Add the upgrade and the total is $22,500, a sum that's more than a fair deal in my estimation and in light of the fact that my near four-year-old Bartok was returned to me as an essentially all-new unit backed by a fresh-from-the-oven, one-year factory warranty.

My advice to current Bartók owners: Avoid listening to the Bartók APEX unless you've already talked yourself into making the move. While not inexpensive, the sonic improvements are a triumph of naturalism and harmonic detail that will floor even the most jaded audio listeners. There are certain things that the APEX does that, once heard, you can't unhear.

Kudos are also in order for the talented engineering team at dCS. It's a testament to their inspiration, and dedication (and likely some long nights) that they could take an already superb device and improve it to such a purely musical extent. The motto at dCS is "Only The Music," words that have even greater relevance in this context. That is, once every trace of electronic signature is removed from an audio component, only the music remains. An unreachable goal? Perhaps. But Bartók APEX is an astonishing leap towards that goal and the very definition of what the high-end is all about.

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# Q&A: John Giolas, dCS VP Sales & Marketing

**How did APEX come about?**

At dCS our R&D team work across several areas in parallel. Firstly, there is the continual product maintenance and improvements roadmap where we are focused on developing new features and improving the reliability of existing products. The second stream of work is more research based and is focused on exploration and development of technologies rather than products.

This type of work is where our engineers are free to work on their own or in teams to explore how we push the state of the art in terms of measured performance at the same time as getting the listener closer to the music. These projects often don't have set timelines, can involve a lot of back and forth between development and listening and yield unexpected results.

This development approach is how the update to the Ring DAC mappers originated. It is also how APEX was developed. With APEX this was a totally analog project, one which Chris Hales and his team drove from start to finish.. With dCS hardware being so flexible and programmable these projects often involve close collaboration between the software and hardware teams but with APEX this was a totally analog project so one which Chris Hales and his team drove from start to finish.

APEX was born of the question "Where are the performance limitations of our analog hardware?" We've been improving performance through firmware upgrades for some time but there would clearly come a point where the hardware itself would be the limiting factor. The aim, then, was to identify where in the circuitry those "bottlenecks" were and to understand how they were potentially limiting performance. Once you have a theory, a common way to prove it is to do something in line with that theory that makes things better (or worse), so some improvements come automatically as part of that investigation. There's only so much you can do by hand-modifying existing PCBs, and there comes a point where you want to put it on a proper PCB to prove the principle in a more robust and less temperamental form and that, in essence, was when APEX became reality.

**What does it mean to replace individual transistors with a compound pair?**

A compound pair is an arrangement of two transistors that works like a single transistor. In doing this you can combine the characteristics of the two transistors to make a "super transistor". The Darlington pair, which combines the current gains of the two transistors, is a commonly used compound pair configuration. In APEX we use it to achieve desirable input and output characteristics that wouldn't be available in a single transistor.

This change was part of a general reappraisal of our balanced output stage, which also resulted in a fortuitous reduction in its output impedance. The loading of the cable and preamplifier/amplifier can adversely affect the performance of an output stage, sometimes to the point where it becomes the limiting factor when it comes to performance. We have understood this for some time and have always made great efforts to ensure our output stages can drive real-life loads without coloration. With APEX we just made that better.

**Could you elaborate?**

For some time, we have understood the deleterious effects caused by interactions between preamplifier stages and the connecting cables and have always made great efforts to ensure our output stages can drive real-life loads without coloration. It's not entirely intuitive to many audiophiles but many of the challenges with D-A conversion are analogue problems. A logic "1" can be represented by quite a large range of voltages and for the digital system, it's still a logic "1." If you then want that "1" to represent something in analogue terms (and that's what D-A conversion is all about) then you're suddenly *very* concerned that logic "1" is represented by a very specific voltage. In that sense the Ring DAC is largely an analog device. In all dCS DACs, the core of the Ring DAC architecture consists of a latch and resistor array, reference voltage, summing bus and associated summing amplifier, and a buffer/output gain stage that connects to the pre or power amplifier. The dCS Digital Platform instructs the Ring DAC which resistor "latches" to turn off and on via a dCS-designed software system we call the "mapper." Its sophisticated quasi-randomization accomplishes this in such a way that any component value errors are averaged out, vastly improving linearity over other DACs topologies.

**How has the Ring DAC changed?**

The new Ring DAC APEX hardware features several enhancements. The reference supply feeding the Ring DAC circuit fundamentally affects the performance of the DAC and was one of the first areas dCS engineers looked at during the research and development phase. This investigation led them to make some significant adjustments and enhancements. The engineers thoroughly modified and improved all subsequent stages of the Ring DAC, including the summing and filter stages. The APEX Ring DAC output stage was redesigned, ostensibly to improve its linearity, though this did have other some beneficial side-effects, as I mentioned earlier. In doing all of this, the circuit board layout was given careful attention. At our level of performance, the importance of good PCB layout cannot be understated and we took this opportunity to make some significant enhancements there, too. tas

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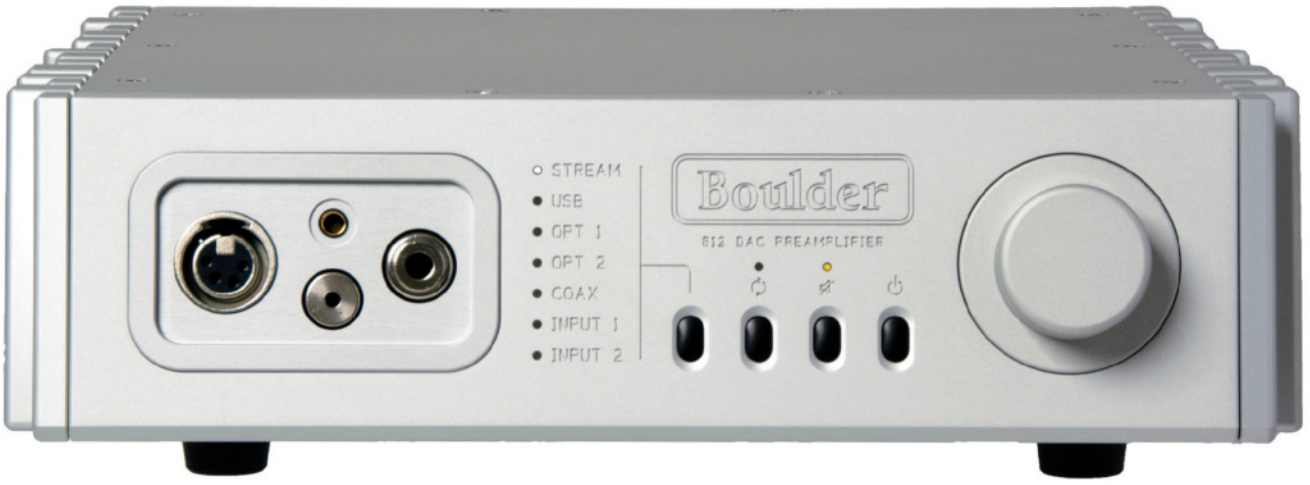


# Boulder 812 DAC/Preamplifier

## Perfect Fit

Steven Stone

**Last year I reviewed the Boulder 866 integrated amplifier.** During that time, I also visited the Boulder factory. During my visit I passed a small conference area on my way to Boulder's fabulous listening room, where I spied a compact chassis sitting all alone on a desk. When I ducked in to get a better view, I got my first sight of the soon-to-be-released Boulder 812. The first words out of my mouth were: "I want to review *that*!" So here we are…

The Boulder 812 includes the combined functions of an Ethernet and Wi-Fi-aware network DAC with a preamplifier and a headphone amplifier. In addition to its digital inputs, the 812 also has provisions for two balanced analog inputs. Outputs include only one pair of balanced connectors. Physically, the 812 is smaller than the Boulder 866. If you already have a power amplifier or powered loudspeakers that you love, the 812 could be a better option than the 866 and was created for just such a system.

### Technical Tour

Given the amount of technology inside the Boulder 812, some of the finer details of its construction were not addressed in the owner's manual or promotional materials. Unlike most Asian brands I review, which include full-color Audio Precision test results, photographs of component interiors, and complete lists of components used, Boulder is less forthcoming with tech tidbits. Sure, there are some specifications on its website but less mention of the basic building blocks that go inside the final result. So, I asked questions.

What did I glean from my queries? First, like the Boulder 866 the 812 employs a Raspberry Pi 4B as its internet gateway device. As for its DAC section, it's not a chip from AKM, ESS, or TI. Boulder refused to say what it is exactly, except that it is the same section found in the 866. Obviously, I could have removed the ten hex bolts from the top panel, cracked the 812 open, and looked, but that would have been rude. So, as of now it's Boulder's secret, but we can still make wild guesses.

The 812 employs balanced analog Class AB circuitry throughout, using op-amps to achieve a maximum of 19.4 volts of gain and a maximum output level through its balanced XLR outputs of 14 volts. Volume control is handled by an optically encoded 100-step control with 1.0dB increments. At 14 pounds, even the bulkiest cables would be hard pressed to pull it off a table.

### Ergonomics

Since the Boulder 812 combines all the electronic functionality of multiple components into one svelte package, the controls and menus are complex. The owner's manual is a must-read to discover all the features and options available. Boulder also developed an app to control all the 812's functions for both iOS and Android platforms. It will find any Boulder components in your system and allow you to control them from your phone or tablet. Boulder also supplies a RF-based remote control for the 812, but I found that I used the app far more than the remote.

Input options for the 812 include Ethernet, one coaxial digital, two optical digital, one USB-B, two analog balanced XLR inputs, and four USB host connections. Output options include one pair of analog balanced XLRs on the rear, one 4-pin XLR, one ⅛" single-ended, and one ¼" single-ended headphone on the front panel, which can be hidden behind a supplied etched-metal cover.

The 812 can function as a Roon endpoint, which is how I used it during most of the

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## Specs & Pricing

**Type:** DAC, streaming endpoint, preamplifier, and headphone amplifier
**Analog inputs:** Two balanced XLR inputs
**Digital inputs:** Two optical, one coax, one USB, four USB Host, Ethernet, Wi-Fi, Bluetooth, AirPlay
**Drive capacity:** Four external self-powered USB drives
**Formats supported:** PCM to 256, DSD to 512, MQA, FLAC, AIFF, MP3
**Outputs:** One balanced XLR output
**Headphone outputs:** Balanced four-pin XLR, 1/8" single-ended connector, ¼" single-ended connector, and Pentaconn
**Dimensions:** 12" x 3.5" x 12"
**Weight:** 14 lbs.
**Price:** $9250
boulderamp.com

review period. The Roon controller apps on my iPhone, Android Fire pad, and Mac Studio all found the 812 with no issues. I also experienced no dropouts, stuttering, or slow loading of files. In short, Roon proved to be extremely stable with the 812 as an endpoint. You can also connect USB hard drives with additional music files to the 812, but they must have their own power supplies, as the 812 does not support power through the USB host connections. Since I have all my music files on a NAS drive, I did not try attaching a USB drive to the 812. Also, I found that most of my portable drives that are filled with music (such as the superb sampler from Wilson Audio's Peter McGrath) were not self-powered.

As a headphone amplifier placed within arm's reach the Boulder 812 was a pleasure. Festooned with four different connection points for either 1/8" mini-stereo or 4-pin Pentaconn terminations, the 812 easily handled everything from 115dB-sensitive CIEMs to my least-sensitive headphones, including the Dan Clark Stealth, Abyss Diana, and Beyer Dynamic DT990 600-ohm model. Even though the headphone connections are all in a recessed rectangular space, there's ample room for even the most oversized headphone-jack barrels. The 812 can power all four headphone outputs simultaneously, but unless you have four headphones with similar impedance and sensitivities you will probably find that some will be much louder or softer than others if all are connected at once.

The 812 includes one feature I've rarely seen on a headphone amplifier—a headphone connections cover. The reason given for this accessory's inclusion is to keep dust out of the headphone connections. I suppose if you plan to use the 812 in a dusty environment, the cover would be an excellent idea, but in my time as an audiophile I've never personally experienced a headphone connection becoming intermittent or ceasing to work due to dust. But then I don't have any systems set up in a woodworking shop, so I suppose in the right environment dust might be an issue. The cover is beautifully engraved and fits perfectly, but I would have preferred no cover so Boulder could relegate those cost savings to adding a second pair of analog outputs. You may feel differently, especially if you live in a desert.

### Sound

Yep, sounds like a Boulder. I know that's perhaps a bit too glib, but I have during my audiophile lifetime heard, owned, and reviewed quite a few Boulder Amplifier components. My history with Boulder goes back to its first consumer-audio gear. I owned Boulder AE500 monoblocks (driving the original Apogee Fullrange loudspeakers) and the Boulder LA5 preamplifier, heard many of its 1000 Series offerings at shows and in listening rooms, and recently finished spending time with the Boulder 866 integrated amplifier, so I think I'm as familiar with the Boulder sonic signature as anyone. That signature is all about transparency, neutrality, and not editorializing on the sonics in any way.

The Boulder 812 imbues every track with a special sense of solidity and cohesive energy. Also, the 812 has a superb level of lucidity, so that each recording retains its own particular soundstage and environmental characteristics. Some systems, especially those with big speakers in large rooms, often have only a one-dimensional soundstage presentation—big. The 812 doesn't impose itself onto a recording. In my room through the Spatial X-2 loudspeakers driven by either a Pass 150.8 or Orchard Audio Starkrimson Ultra 2.0, monophonic recordings were seemingly no wider than a quarter, while big orchestral pieces, especially those made with three spaced omni microphones, were as spacious as the Grand Canyon.

After a period of time, to ensure that the 812 was performing optimally (some folks might call this burn-in), I attempted some matched-level A/B comparison with my current reference DAC, the Goldnote DS-10+. Using Roon, I can group any of the supported endpoints so that they receive the identical signal at the same time. This simplifies an A/B test. I say I "attempted" because ensuring

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an exact match of volume levels was impossible, since the 812 does not provide a volume read-out in dBs. The only indication of volume levels when using the 812's volume control is a vertical row of LED lights. However, when using Roon or the Boulder app in variable-output mode, those apps provide a numerical volume display.

In DAC mode the 812 produces 3.95 volts from its balanced outputs according to its specifications. For my tests I tried using both the Goldnote and the Boulder in DAC mode, but the volume levels when receiving the same track via Roon's grouped mode were not identical in level, so I switched the Goldnote into preamplifier mode so I could adjust its levels. I chose to control the Goldnote instead of the Boulder because the Goldnote has 0.5dB increments of adjustment, while the Boulder uses 1dB. But for critical matching even 0.5dB is not a fine enough increment for listening comparisons, though I got the levels close enough for WAGs (wild-ass guesses).

After much long-term listening and several semi-sighted A/B sessions, I could not reliably tell the difference between the Boulder 812 in DAC mode and the Goldnote DS10+. I say semi-sighted because, using the Schiit Freya S as my source selector, I did not know which DAC section was which, unless I looked at the little LEDs on the Freya that indicate which input had been selected. Since the Freya S is about eight feet from my listening spot, I couldn't tell which input was selected until I got up and looked. Through both DACs my own live recordings of the Boulder Philharmonic at Macky Auditorium and those I made at the Salina Schoolhouse sounded exactly as they should have. Depth cues and imaging were identical as was the rhythmic drive and dynamic contrast.

I will add this caveat—I'm 72. My upper hearing limit at last test was 13kHz. If there are sonic differences above that frequency, I wouldn't know. But while my hearing's frequency range might not be what it was when I was in my 20s, my knowledge of sonic tells and access to high-quality reference material (including my own recordings) is far greater. So, if you're an old wily audiophile like me, you may very likely arrive at the same sonic conclusions.

## Summary

Judged solely on its sonic merits, the Boulder 812 delivers everything you could want from a high-performance audio component. Its limiting factors are ergonomic. For some potential owners the absence of a display that renders the volume in dBs may be an issue. For others the dearth of analog outputs might be a problem. But if you are looking for a superb-sounding platform for a small room, desktop, or nearfield system, the Boulder 812 could be a perfect fit. tas

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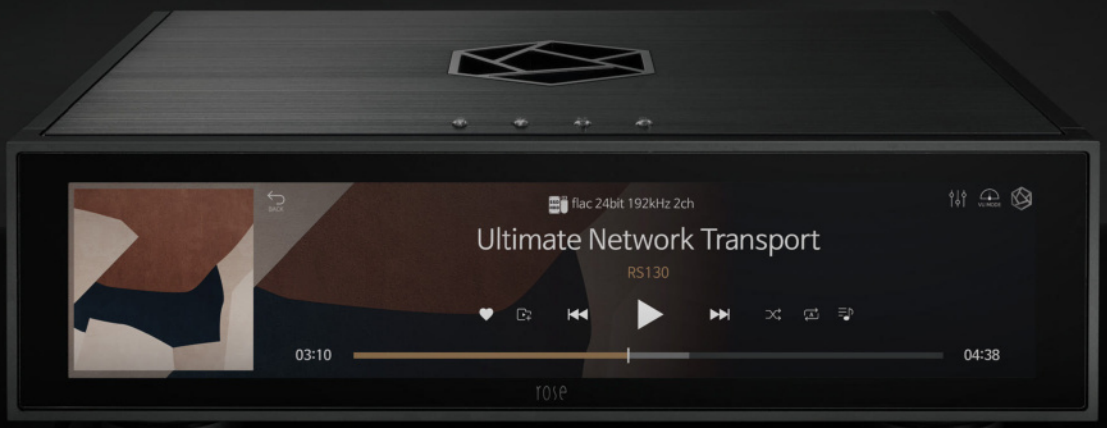

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## Righting a Digital Wrong

Andrew Quint

**You could say that the third age of multichannel** music is upon us. The first, of course, was the Quadraphonic era that began its run in the late 1960s and witnessed the availability of four-channel records and tapes. But the technology was flawed and, to the average consumer, seemed overly complex and expensive. It was gone within a decade. In the mid-70s, Dolby Laboratories introduced analog surround-sound systems to theaters. When movies finally became available to watch at home, both visual and sonic quality advanced with a series of formats including Betamax (1975) and VHS (1977) tape, Laserdisc (1982), DVD (1995), and, finally, Blu-ray (2006). SACD (1999) and DVD-Audio (2000), riding the home-theater wave, initiated a second age of multichannel music, which also failed to gain much traction with an audiophile constituency. A more general flight from physical media had an impact, as well. In 2012, the first Dolby Atmos-encoded movie was released (Pixar's *Brave*), and, for whatever reason, audiophiles seem to be much more interested in what's called immersive audio. In addition to music-only Blu-ray discs offering "object based" spatiality, thousands of Dolby Atmos tracks are currently available for streaming from Apple Music, Tidal, and Amazon Music.

So, great, right? Multichannel music is once again in its ascendency and perhaps this time with more audiophiles interested—except for one technical drawback that many feel significantly compromises audio quality. That's the High-Definition Multimedia Interface, better known as HDMI, a proprietary transmitter/receiver protocol that transmits audio and video data from a source to DACs. Consumers have been told that HDMI is great for video, which is true, and that it's also the "best" interface to carry music, which isn't. There are two primary problems with HDMI, when it comes to audio. The first is the poor quality of the clock recovered from the data stream that's responsible for a substantial amount of phase noise; the second is that HDMI is very sensitive to factors like electromagnetic interference, cabling, and ground loops. There's a consensus among digital engineers that other "digital audio transport methods"—SPDIF, AES/EBU, and USB—sound better. But alternatives for consumers, especially when multichannel is involved, aren't widely available. HDMI is ubiquitous.

The Czech company Audiopraise was launched in 2014; before that, this small group of audiophile engineers worked as for-hire designer/consultants. An early effort was the Vanity[93] module, a circuit board sold to consumers to be installed into the then wildly popular Oppo BDP-93 disc player to improve digital performance, especially DSD-to-PCM conversion. (I reviewed the Vanity[93] more than a decade ago, in TAS 228.) The first Audiopraise product marketed under the company's name was the CZAP DAC. Pavel Valousek, one of the Audiopraise principals and the company's *de facto* spokesman, described the CZAP to me as "a collection of all our IP, design techniques, algorithms, and circuits, which are still being used in various combinations in our other products and in our consultancy business."

Valousek and his colleagues have taken the issues with HDMI seriously and, not surprisingly, have identified the audible problems as relating to jitter. Basically, the HDMI geometry consists of multiple conductors that include an elaborate TMDS (transition-minimized differential signaling) clock channel, as well as separate paths for audio, video, and auxiliary data. In standard applications, the audio clock at the HDMI receiver end is derived from the TMDS clock. The process of generating the audio clocks (determining the audio sample rate and generating the necessary clocks from the TMDS clock) must be very precise to avoid introducing timing errors. Audiopraise throws out the TMDS clock and instead use the incoming data rate to generate a new and extremely stable audio clock with the help of a pair of custom-made audio oscillators plus "a clever control algorithm." Measured jitter is reduced to extremely low lev-

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## Specs & Pricing

**Product type:** 8-channel HDMI extractor
**Inputs:** HDMI x2 (one is video pass-through)
**Outputs:** Choice of four two-channel AES (XLR), SPDIF (RCA), or SPDIF (BNC)
**Supported sampling rates:** 44.1kHz/88.2kHz/96kHz/176.4kHz/192kHz
**Dimensions:** 10.5" x 2.6" x 7.2"
**Weight:** 1 kg (2.2 lbs.)
**Price:** $1899

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els. (I recommend reading a highly understandable "white paper" authored by Valousek and his associates that details the experiments done and measurements taken to develop the VanityPRO's tech: audiopraise.com/projects/internal/vanitypro/hdmi-audio-jitter/.)

The VanityPRO takes in digital audio on HDMI and outputs up to four two-channel digital data streams in the SPDIF or AES/EBU formats. The HDMI signal that comes into the VanityPRO is scrupulously isolated from the audio areas of the component by a "dielectric barrier" that limits the amount of electromagnetic noise that can pollute the audio and newly created clock circuits. Included are two Jameco power supplies, one for the HDMI part of the extractor and one for the audio domain. By the time you read this, Audiopraise promises to have introduced a linear power supply for the VanityPRO that matches the product in appearance.

The VanityPRO HDMI extractor is a compact component weighing about two pounds; its black (or silver) metal case measures 10.5" x 2.6" x 7.2". In front is a single rotary/push-button knob that provides complete operability of the device, as well as an LED status indicator light and a 57mm x 43mm LCD screen. Around back, the appearance differs according to which output board has been ordered. Multichannel


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listeners will find four digital connectors for a total of eight channels via either AES/EBU (XLR) or SPDIF (RCA or BNC). There's also a stereo version that has one of each of those digital outputs, plus TosLink. To the far right and left of the rear panel are ports for the two supplied external power supplies, the HDMI input, an HDMI output (for video pass-through) and two word-clock outputs (44.1kHz to 192kHz and 22.5792MHz/24.576MHz) that allow for clock synchronization with downstream devices such as a DAC.

Navigation around the ten pages of menus quickly becomes intuitive. The Home page shows what the VanityPRO is receiving via its HDMI input—PCM vs. DSD, sampling rate, bit resolution, whether the incoming signal is active (Run or Stop), and the number of channels coming in. It also allows for adjusting volume on an arbitrary scale from zero to 100. An Audio Setup page lets one establish parameters for DSD-to-PCM conversion with Audiopraise's own proprietary algorithm; DoP can be enabled if that's what your DAC wants. The user has a choice of four conversion filters and DSD/PCM level-matching can be selected. There are also menus for speaker setup and setting channel levels in 0.5dB increments (maximum attenuation is -7.5dB). Additional pages include HDMI setup (a "repeater" option lets the original incoming HDMI stream pass through as is), EDID setup (video parameters and speaker layout), system setup (screen brightness, clock functionality, factory reset), HDMI AV information, and a screen with eight audio-level meters for quick confirmation of signal input. Finally, there's a very busy system status screen that requires better-than-average vision or a magnifying glass to be of much use. (I went with the second alternative.)

For this review, I requested the multichannel AES/EBU version of the VanityPRO. To get a handle on the component's impact on an incoming TDMS data stream, I first used a two-channel source to send signal to my aging but dependable Anthem D2v preamp/processor, since far fewer variables would be involved when making comparisons. The Anthem has a single AES/EBU stereo digital input plus plenty of HDMI inputs. I used identical AudioQuest Chocolate HDMI cables from a Sony X1100ES disc player to either the VanityPRO or directly to the Anthem; a Wireworld Platinum Starlight AES/EBU cable connected the Audiopraise to the Anthem. Comparing "native" HDMI to the data stream leaving the VanityPRO was as easy as switching the AQ HDMI cable of the Sony player and changing the input on the Anthem. The Anthem connected with Siltech Classic Legend 880i balanced interconnects to Tidal Ferios amplifiers driving Magico M2s via Siltech 880L speaker cables.


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Listening to familiar reference recordings, from CD and SACD, demonstrated more substantial differences than anticipated between the native HDMI input and the extracted one. With the exquisite readings of the two Brahms clarinet sonatas by Anthony McGill and Gloria Chien on the Cedille label, I heard a more seamless joining of the chalumeau (low), clarion (middle) and altissimo (high) registers of the clarinet. The sound was perceived as emanating from a single object, rather than three. Subtle inflections of the clarinet's dynamic level and tone color were more easily appreciated, and Brahms' characteristically dense left-hand piano writing was clearer. On the Haitink/Concertgebouw version of Shostakovich's Symphony No. 15, a recording I return to for pretty much every review I write, the opening glockenspiel notes were nicely differentiated in terms of exactly how hard the percussionist was striking the bells. The active bass part on "This Town," the opening track on Patricia Barber's *Clique,* was more evenly reproduced in my room than is often the case, and the singer's voice was richly characterized. It was hard to imagine the title track on The Big Phat Band's *Act Your Age* album having more coherence at enthusiastic playback levels. "Too Proud," from Joe Harley's BluesQuest SACD sampler, which headlines vocalist "Mighty" Sam McClain, had startling dynamics and the singer's anguished vocal was as gripping as I've ever heard it—and I've heard it a hundred times.

With the benefits of the HDMI extraction process apparent, I picked out favorite multichannel selections to hear in surround. This time, the tracks were played off my NAS with a Baetis Reference 3 server. For a multichannel DAC, I borrowed an Okto Research dac8PRO, which has four two-channel AES/EBU digital inputs (I needed only three) and eight XLR analog outputs (I required six, of course, for 5.1 playback). Amplification for the center and surround channels was provided by three Pass XA 60.8s. The additional speakers were Magicos—an S3 Mk2 for the center channel, a pair of S1 Mk2s for the surrounds, and an S Sub.

I've never enjoyed a multichannel presentation in my room more than I did with the Audiopraise/Okto combination. Paavo Järvi's PentaTone recording of Stravinsky's *L'histoire du soldat* comfortably distanced the nine players from one another on the large stage of a German broadcast hall. Each player clearly occupied his or her unique location yet seemed to be breathing the same air as the others. Scaling of the disparate instruments was ideal. On "LTMBBQ" from jazz pianist Wayne Horvitz's *Sweeter Than the Day,* it's not always easy to hear that the guitar doubles keyboard for the "head" played at the beginning and end of the tune; it was never more evident than with the VanityPRO in the audio path.

There is one fly in the ointment. At least for now, the VanityPRO cannot be used with Dolby Atmos or certain other immersive formats such as DTS:X. Pavel Valousek says: "The VanityPRO can pass through raw Atmos data (packed in Dolby Digital Plus or TrueHD), but there is no device such as a DAC or processor that would be able to take that digital audio, reassemble the compressed data, and decode Atmos. Handling the compressed multichannel formats is a completely different ballgame, and we may look into this in the future. That would mean getting into the AV receiver domain."

The rise of object-based multichannel audio has been impressive but the primacy of this approach for multichannel *music* is far from certain at this point. If you've been into surround sound in a big way and have a large library of discrete multichannel music, the Audiopraise product effectively addresses the shortcomings of the HDMI interface—a factor that has limited the ultimate quality of DSD and high-rate PCM playback for critical listeners, and the cost is reasonable. If you have a suitable multichannel DAC (or would consider getting one), you should give the VanityPRO strong consideration. It delivers on its promise. tas

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# Wadax Reference DAC and Reference Server Upgrades: Akasa DC Cables and Reference Power Supply Unit

## Exploring the Frontier

Robert Harley

**I've now heard five iterations of the Wadax Reference** digital front-end components (Reference DAC and Reference Server), with each configuration progressively elevating the state of the art in digital playback. I started with the Reference DAC, a 206-pound, $166,420 digital-to-analog converter in three chassis (two of those chassis are massive power supplies). The Reference DAC, in my experience, set a new standard in digital playback, rendering instrumental timbre, dimensionality, bass power and texture, and dynamics with unprecedented realism. (You can read my full review in Issue 312.) We named the Reference DAC Overall Product of the Year Award co-winner in 2021.

And then I added the Wadax Reference Server ($68,800) connected via USB, which took the performance up a substantial notch (reviewed in Issue 326). The next upgrade was replacing the USB interface with Wadax's custom Akasa optical interface ($27,400) between the DAC and server, a move that required adding an optional board to the DAC's modular architecture.

**We named the Reference DAC Overall Product of the Year Award co-winner in 2021.**

This bi-directional interface realized a staggering improvement in every aspect of the sound—far greater than any other interface upgrade I'd experienced. The Akasa interface is absolutely required to realize the full performance potential of the Wadax pair.

I had happily lived with this setup for many months, thinking that it was the end of the line. The Reference DAC and Reference Server connected via the Akasa interface were significantly better than any other digital I'd heard. The pair's bass performance was phenomenal, combining power, weight, and dynamics on one hand with texture, finesse, and resolution on the other. The Wadax duo rendered timbres with a rich density and saturated tone color, devoid of the thin and threadbare textures often heard from digital. Resolution was phenomenal, but not in an analytical way. But perhaps the Wadax's greatest achievement was in how it revealed depth, bloom, air, and dimensionality. The flat, carboard-cutout soundstaging associated with digital was replaced by a wonderful expansive quality that let you hear the size of the venue and presented individual instrumental images as surrounded by air and what Jonathan Valin calls "action"—the bloom around an instrument expanding outward with the note's dynamics and pitch.

But the creative minds at Wadax were far from finished. In this follow-up, I'm going to report on two significant upgrades to this platform. The first is the Akasa DC cables that connect the DAC's outboard power supplies to the DAC ($20,400 each, two required). The second is the addition of the $52,700 Reference PSU (Power Supply Unit) to the Reference Server. The server has an integral power supply that can be upgraded with the external unit. You can upgrade the Reference PSU with the addition of one Akasa DC Reference cable ($20,400). The Reference PSU is housed in a chassis the same size as the Refer-

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## Specs & Pricing

**Akasa Reference DC Cable**
**Price:** $20,400 each for 1m (two required for Reference DAC, one required for Reference Server's Reference PSU, custom lengths available)

**Reference PSU**
**Dimensions:** 18.9" x 10.43" x 17.1"
**Weight:** 100 lbs.
**Price:** $52,700

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ence DAC and weighs 100 pounds. I will describe the products' technologies in the sidebar.

For those of you adding it up, the fully realized five-chassis 350+ pound Wadax Reference digital front end comes in at a breathtaking price of $376,520. But that staggering sum—along with lots of rack space—gets you the absolute state of the art in digital replay.

### Listening

First up were the Akasa DC cables that replace the stock cables connecting the two outboard power supplies to the Reference DAC. When I learned of this upgrade, I thought: "How much difference could DC cables make?"

I installed the Akasa DC Reference cables as soon as they arrived and listened but didn't take notes because I was involved in other projects. After about six weeks of listening to the system with the Akasa DC cables, I switched back to the stock cables and then performed some comparisons.

I should no longer be surprised by anything in audio, but replacing the stock DC cables with the Akasa cables resulted in a wholesale improvement of what was already the state of the art in digital playback. Although Wadax supplied me with information on the cables' design, I still can't wrap my head around why cables carrying direct current should make such a difference. Nonetheless, what I heard after replacing the stock DC cables with the Akasa Reference DC cables was nothing short of astonishing. The immediate impression was one of greater clarity, transparency, resolution, and the feeling of removing a scrim between you and the music. The midrange through the treble was more open and airier, with greater life and presence. There was an apparent increase in midrange and treble clarity and light that fostered the impression of greater immediacy; yet, at the same time, textures were more liquid and lusher. A slight overlay of hardness with the stock cables was stripped away, revealing even greater beauty to timbres. The track "Two Hearts" sung by the amazing Samara Joy on Terri Lyne Carrington's album *New Standards, Vol. One* was particularly revealing of the way the Akasa cables reveal greater harmonic beauty, more warmth and body, increased textural density, and greater liquidity of timbre. Her voice was simply purer and more realistic with the upgraded cables.

**What I heard after replacing the stock DC cables with the Akasa Reference DC cables was nothing short of astonishing.**

Frankly, there was a thinness to her voice with the stock cables that you'd never detect unless you heard the system with the Akasa cables. This combination of greater immediacy and smoothness was immensely rewarding.

The bass was noticeably tighter and better defined with the Akasa DC cables. The bottom end was more precise and articulate in both dynamics and pitch. As a result, I heard more of the bass player's contribution, which engendered a heightened sense of a band playing together. The rhythmic flow was more pronounced. The difference was like what you hear from good and poor loudspeaker placement in a room.

Music with a lot of percussion was revelatory of the Akasa cables' superior resolution and greater openness. The transient attacks were more vivid and present, yet also reduced in etch. I also heard an extra puff of air around the transient that added to the sense of realism. The Reference DC cables more fully resolved the mechanism and materials creating the sound—wood striking wood, wood striking metal, hands on stretched skins, the metallic component of timbales, for examples. This quality heightened the feeling of realism and musical energy.

I also heard more space and bloom around instruments and voices. On the aforementioned Samara Joy track, her vocal as well as the other instruments in the spare arrangement occupied their own spaces in the soundstage with a more tangible sense of air between the images. Her voice was also more three-dimensional; the impression of the image having depth—not just where the image was positioned in the soundstage but also depth of the image itself—made for more lifelike three-dimensional body. The overall presentation was more open and expansive, with greater transparency and illumination.

Beyond these specific descriptions, there was an ease, a flow, a musical rightness with the Akasa DC cables that's hard to describe. The sound was gentler yet more vivid, which may sound like a contradiction in terms but reflects the Akasa cables' simultaneous increase in timbral liquidity and greater openness and presence.

Moving on to the Reference PSU for the Reference Server, I also installed this upgrade and listened to it for about six weeks before going back to the stock internal supply for side-by-side comparisons. First up was experimenting with AC polarity. As mentioned, the Reference PSU allows you to invert the incoming AC's polarity via the front-panel touchscreen. In my system, inverting the polarity produced a wider soundstage, but the bass was less defined, and midrange textures were not as liquid. I preferred the non-inverted setting, although my experience suggests that this feature will be useful to other users depending on their AC power.

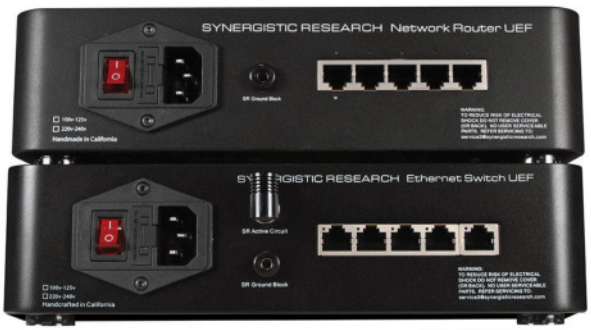
The Reference PSU rendered improvements remarkably like those of the Akasa DC cables—a more transparent window on the music. Timbres were more liquid, the bass better defined, and the soundstage more expansive. In fact, the similarities were striking, so I won't reiterate them. Surprisingly, however, I thought that the Akasa DC cables rendered an improvement much like and comparable to adding the Reference PSU.

## Conclusion

I've written in the past about how miniscule objective changes in an audio signal can have a significant effect on musical perception. That is, there's not a linear relationship between the objective magnitude of a change in the signal and the musical perception of that change. The objective differences in the Reference DAC's analog output signal between the stock DC cables and the Akasa Reference DC cables, and between the Reference Server's internal power supply and the external Reference PSU, must be infinitesimally small; yet their effect on musical perception is profound.

The Akasa DC Reference cables and the Reference PSU have, surprisingly, improved upon a platform that I had already considered the state of the art in digital playback. If you heard the Reference DAC and Reference Server without these upgrades (as I did for many months), you would say they had no shortcomings. But the addition of the Akasa DC Reference cables and the Reference PSU takes their performance to a new level of realism and musicality.

If you own any of the Wadax Reference components, you must audition these latest upgrades. And if you are fortunate enough to be thinking about acquiring these masterpieces, the Akasa DC cables and Reference PSU should be considered mandatory. The fully loaded Wadax digital front end is, in my view, the highest expression of audio art and engineering.

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## Technology

**LET'S FIRST LOOK AT** the Akasa DC Reference cables that connect the two external power supplies to the Reference DAC, and the single Akasa DC Reference cable that connects the optional Reference PSU to the Reference Server. Note that the term "Akasa" is used for both the DC cables and the optical interface between DAC and server, although they are completely different components.

According to Wadax, the Akasa DC Reference cables and Reference Power Supply are the result of fundamental research into how DC generation, transfer, and grounding propagate through the digital and analog signal paths to affect the final analog output signal. The company says that the DC cable is subject to external influences including microphonic effects when the cable vibrates from sound striking it as well as vibration emanating from the chassis to which the cable is connected. Another potential source of degradation is electromagnetic interference (EMI) or noise induced in the cable when the cable acts as an antenna. There's also the issue of capacitive coupling from stray capacitance across the entire cable length.

The second source of compromised performance comes not from external factors but from the cable design itself. Every cable has an equivalent impedance that is determined by the cable's conductor material, dielectric, and geometry. This equivalent impedance reacts with the high-speed current variations to generate noise in the cable. According to Wadax, this noise has a wide power spectrum and has voltage and current components.

The Akasa DC Reference cables' design was informed by this research. The cable starts with a heavy-gauge eight-conductor array made from a custom alloy with single-crystal casting. Most cables are "drawn" rather than cast. In drawn cables, the conductor material (usually copper) is pulled through a die that forms the conductor's shape and diameter. This process creates a chevron-shaped grain pattern in the metal (this grain is also called "crystal"). The grains are discontinuities in the material. The signal must traverse these discontinuities, each one acting as a miniature diode. The grain's chevron pattern is why drawn cables are directional—they sound different depending on which direction the chevron pattern is facing. Cast conductors, by contrast, are not formed into their shape by pulling the metal through a die but rather by melting the metal and casting it into its final shape. This process results in a more continuous structure in the metal. The metal has a single grain (crystal) that is stretched out along its length. You may have heard of OCC copper, an initialism for Ohno Continuous Cast, the first audio conductor to be made with this technique back in the 1980s by a Japanese researcher.

The conductors in the Akasa DC Reference cables are made from a custom metallurgy based on a silver-gold alloy (zero copper content) that has a purity of "seven nines" (7N), meaning that it is 99.99999% pure. There are eight of these heavy-gauge conductors in each cable. The cable is mechanically damped across its length with a variable-frequency damping design with very low hysteresis (memory).

The cables' terminations are something to behold. They are massive, custom, CNC-machined connectors built with an outer structure and a vibration-controlled subchassis inside. Wadax reports that in its research its designers were surprised by how much termination vibration degraded performance, leading them to develop this extraordinary connector.

Let's look next at the Reference Power Supply Unit (PSU) for the Reference Server. The Reference Server was initially introduced with an internal power supply. But Wadax was looking to the future, providing a DC input jack to make possible a future upgrade by adding an external supply. Why an external supply? First, an external supply can be much larger than one that must fit inside the server's chassis. A large external chassis means the layout can be optimized, and there's additional real estate for more (and more sophisticated) regulation stages, as well as a larger power transformer. Moreover, separating the power supply isolates the server's electronics from radiated noise, mechanical vibration, and grounding reactions with the circuits supplied with DC.

The Reference PSU has reportedly been improved in key areas. The noise floor has been lowered by a whopping 20dB below the internal supply's already low noise (20dB is a huge amount). This supply is the quietest Wadax has ever built, with a noise floor so low that it's a challenge to measure for even the most sophisticated test instrumentation. Wadax calculates that the RMS noise on its DC output is 100nV, measured over a bandwidth of 0.1Hz–20kHz. (One hundred nanovolts is a tenth of a millionth of a volt.) In addition, the noise modulation has reportedly decreased; the noise level doesn't fluctuate with current demand. The Reference PSU also has a lower output impedance to maximize current transfer speed. The supply is reportedly immune to temperature shifts.

The massive chassis is machined and segmented into three parts with extensive mechanical damping. There are nearly 1500 parts inside the Reference PSU, and it weighs in at a whopping 100 pounds. The goal was to create the ultimate power supply that delivers noise-free direct current to the circuits that is impervious to varying load, vibration (acoustic and mechanical transfer), and temperature.

As mentioned, the front-panel's 5" color display shows the polarity of the incoming AC and allows you to flip that polarity (180° inversion) via the front-panel touchscreen. This is the same as turning over a non-polarized AC plug, which critical listeners have been doing for years. The AC polarity has an effect on grounding and the supply's overall performance, thus the need to provide a polarity reversal. You simply listen with the AC polarity inverted and not inverted and choose which sounds better.

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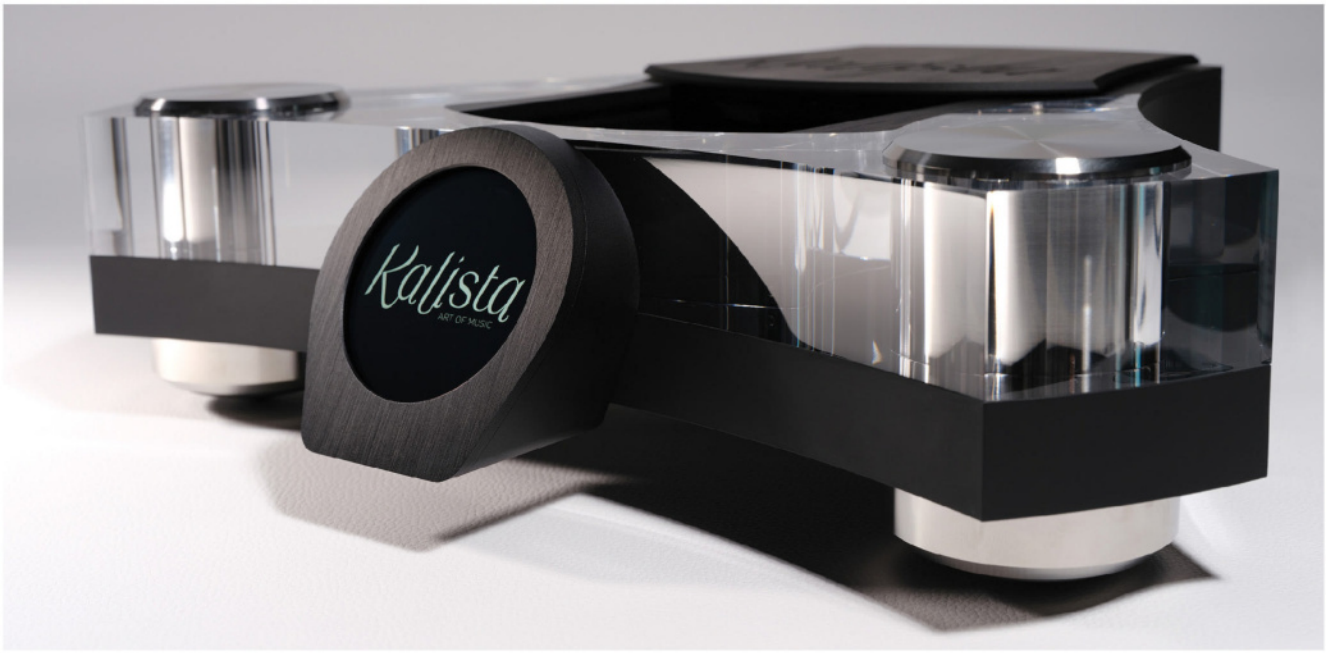


# Kalista DreamPlay XC Universal Digital Source

## The Rules of the Game

Jonathan Valin

**In the Panglossian world of Ones and Zeros, where** everything is perfect forever, it's become commonplace (albeit nonsensical) to claim that digital playback continues to get more and more perfect. Even a die-hard analog fan like me will concede that today's best DACs, streamers, and CD/SACD players—if you can still find a great example of the last (and thanks to Kalista you can)—are far more enjoyably lifelike and listenable than yesterday's. Digital's strengths—its sledgehammer bass response, its thrilling dynamic range, its microscopic resolution of detail, its lifelike presence, and (of course) its convenience—have always been outstanding, while its weaknesses—its cool, thin, abrupt upper midrange and treble (where the rubber meets the brickwall), its discretely analytic (as opposed to organic) imaging and staging, its typical leanness of timbre, its lack of dimensionality, its deathlike background silences—are less marked and obtrusive. Digital still sounds different than analog, of course, but it's getting to the point where you can't categorically claim that one medium is wholly superior to the other. Both are mixtures of plusses and minuses, and which you prefer (and, yeah, I still prefer analog, especially with the advent of optical cartridges, today's very-low-noise/high-accuracy turntables and tonearms, and new-gen RTR tape decks, fresh or refurbished) will depend on what kind of listener you are—what qualities you prioritize in playback and how closely you listen.

All of this brings me to the handsome albeit pricey *objet de son* I'm about to review—the $79,000 Kalista DreamPlay XC, which, like so many other digital products nowadays, is by design impossible to reduce to a single component category. The DreamPlay XC isn't just a DAC or a streamer; it is both, as well as a CD/SACD player and a preamp with Leedh Processing volume control. In Kalista's words, it is a "universal digital source." Sitting on its optional, floating, anti-vibration Silent Base, it is also an object of considerable beauty.

Kalista is the ultra-high-end off-shoot of the celebrated audio firm Metronome, located near Toulouse just north of the Pyrenees in southern France. Founded in the early 2000s, Kalista continues its parent company's tradition of hand-crafting its offerings using the "best component parts" and the "highest-grade materials." Although these are scarcely novel claims, a look at the DreamPlay XC and its large, highly sophisticated outboard power supply will impress. This isn't your typical rectangular CNC-milled aluminum box. Indeed, the XC is more triangle than rectangle, with its vertexes (the points where any two sides of a triangle intersect) squared off and its "legs" made concave.

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**Dimensions** 440mm x 160mm x 430mm
**Weight:** 22 kg
**Price:** $79,000 (optional Silent Base, $8700)

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**Linestage preamps:** Soulution 727, MBL 6010 D, Siltech SAGA System C1
**Phonostage preamps:** Soulution 757, DS Audio Grand Master EQ unit
**Power amplifiers:** Soulution 711 (two), MBL 9008 A (four), Siltech SAGA System V1/P1, Odyssey Audio Stratos
**Analog source:** Acoustic Signature Invictus Neo/T-9000 Neo, Clearaudio Master Innovation, TW Acustic Black Knight/TW Raven 10.5,
**Tape deck:** Metaxas & Sins Tourbillon T-RX, United Home Audio Ultima5 OPS-DC
**Phono cartridges:** DS Audio Grandmaster, DS Audio Master1, DS Audio DS-W3, Clearaudio Goldfinger Statement II, Air Tight Opus 1, Ortofon MC Anna, Ortofon MC A90
**Digital source:** MSB Reference DAC, Soulution 760, Kalista DreamPlay XC
**Cable and interconnect:** Synergistic Research SRX Revised, Crystal Cable Art Series Da Vinci, Crystal Cable Ultimate Dream
**Power cords:** Synergistic Research SRX Revised, CrystalConnect Art Series Da Vinci, Crystal Cable Ultimate Dream
**Power conditioner:** Synergistic Research Galileo PowerCell SX (two), AudioQuest Niagara 5000 (two), Technical Brain
**Support systems:** Critical Mass Systems MAXXUM and QXK equipment racks and amp stands and CenterStage$^{2M}$ footers
**Room Treatments:** Stein Music H2 Harmonizer system, Synergistic Research UEF Acoustic Panels/Atmosphere XL4/UEF Acoustic Dot system, Synergistic Research ART system, Shakti Hallographs (6), Zanden Acoustic panels, A/V Room Services Metu acoustic panels and traps, ASC Tube Traps
**Accessories:** DS Audio ES-001, DS Audio ION-001, SteinMusic Pi Carbon Signature record mat, Synergistic Research Vibratron SX, Synergsitic Research Atmosphere Satellite Mini (two), Symposium Isis and Ultra equipment platforms, Symposium Rollerblocks and Fat Padz, Clearaudio Double Matrix Professional Sonic record cleaner, Synergistic Research RED Quantum fuses, HiFi-Tuning silver/gold fuses

On its hypotenuse front is a three-inch-round touchscreen, which allows you to choose sources (physical or virtual), run its built-in CD/SACD player, adjust converter options (such as format, filtration, and upsampling), and display the content and cover art of the discs and streams you're currently playing back. (There is also a largish aluminum remote control that duplicates these manual functions, in case you don't want to drag yourself over to the XC's touchscreen.) On its top is an integral CD/SACD player (sourced from Sound United), with a specially designed puck to hold down discs. On its back are the XC's inputs (Ethernet, asynchronous USB, and Wi-Fi), its outputs (AES/EBU on XLR, I²S on HDMI, and SPDIF on coax), and power inlets to which you connect its massive outboard power supply via two supplied 16-pin cables (one for the transport and the other for the DAC).

Speaking of which, both Metronome/Kalista's Managing Partner Jean Marie Clauzel and its importer Wynn Wong of Wynn Audio emphasize the key role that the XC's new 48-pound "Double Elektra" power supply plays in its sonics. "To keep and even increase the analog-type sound that made our company's reputation," says Clauzel, "our main focus was to give all components the precise power they have been designed to work with at their best. Thus, the really big effort made in our PSUs, specifically in the regulation lines." As noted, the XC's Double Elektra PSU is actually a two-in-one—one huge PCB board loaded with capacitors devoted to the transport, the other to the ESS ES9038 Pro DAC.

Absent from the DreamPlay XC, however, is the one item most often associated with Metronome and earlier Kalista products—vacuum tubes in the gain stages, which were widely assumed to be a large part of the reason why Clauzel's DACs sounded so sweet, rich, and analog-like. Also (strangely) missing is Roon compatibility. Although the XC can stream content stored on local drives via UPnP—PCM-based data at up to 384kHz/32-bit and DSD to DSD256/11.2MHz—and network with Deezer, Qobuz, Spotify, and Tidal (with full MQA decoding), you have to download mConnect and/or Audirvana software on your phone, tablet, or laptop to control music-streaming drives and apps. For those of you, like me, who are used to (and quite happy with) Roon, this is a disappointment. Perhaps surprisingly, the absence of tubes is not.

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**Quote**

**SOUNDSTAGE GLOBAL AT THE HIGH END SHOW 2022:**

*"The soundstage was immense and enveloping. This system offered staggering levels of detail, slam, power, and bandwidth, while dynamic range was off the scale. Once heard, never forgotten."*

**Quote**

**ENJOY THE MUSIC AT THE HIGH END SHOW 2022:**

*"Even the crossover is extreme with the elements connected using Nordost cable behind the board, not something I've ever encountered before. The sonic result was suitably room-filling and the bass was on the next level even by the standards of high-end luxury audio."*

**Quote**

**HIFI PIG AT THE HIGH END SHOW 2022:**

*"A truly stunning speaker, they did not disappoint during listening. The stand out track was a live version of Kraftwerk's 'Radioactivity'. Electronic music showed of the speed of the drives and the sound even seemed to come from around and behind you when sat in the sweet spot in the GamuT chair."*

Although completely balanced solid-state with nary a glass bottle in its circuitry, the DreamPlay XC doesn't sound particularly transistory. Indeed, if there is another DAC it resembles sonically, it would be my reference (and equally tubeless) Soulution 760—the first digital converter I heard that had analog-like three-dimensional bloom. Like the 760, the XC has a slightly bottom-up tonal balance, with dark, dense, powerful, articulate bass, exceptionally rich midband color, and imaging that while not quite as 3-D as that of LPs or tapes isn't the usual flat-white digital undercoat. The place where the two units vary slightly is in the upper mids and treble, where the DreamPlay sounds a bit more forward, tightly focused, and energetic, brighter and more scintillant than the Soulution, though not excessively so. As the upper mids and lower treble are also the place where many transients and overtones live, the Kalista's added energy and linearity therein gives it a highly detailed presentation that rivals that of my other digital standby, the MSB Reference DAC. What sets its resolution apart from typical digital is, for lack of better words, the holistic way in which details are presented.

Usually with digital, instrumental and musical details "ride on the surface"; even when they aren't upfront or spotlit, they sound flat, forward, razor-cut, and independent, as if each and every instrument or voice was individually and closely miked. They are plenty clear, all right, but the sense of interconnection, of continuousness (in HP's great, all-purpose word), is reduced. Oh, the instruments in an ensemble all sound like they're playing in the same spot (if taped in a real venue as opposed to sound booths in a studio), but they don't sound like they were recorded playing *together* in that spot. It's as if each were recorded separately.

This is not the case with the DreamPlay XC (or the Soulution 760), which adds lifelike body and ambient and harmonic interconnectedness to sonic images, making them more solid and three-dimensional, more bonded together in a shared space, and more fully "there," both on their own and as parts of an ensemble. This is, indeed, a great advance in the "completeness" that turns sonic parts into near-visible wholes—and up until recently, digital was all about well-honed parts.

Because it does so many things digital (including internet radio, if you opt for it), reviewing the DreamPlay XC is more complicated than reviewing a DAC/preamp like the Soulution 760. As noted, the XC isn't only a streamer; it's also a disc player. Although it is never less than excellent and sonically much the same doing any and all of its multiple jobs, the inherently different sound of different digital sources makes for different presentations.

For instance, there are folks who think that physical media (both CDs and SACDs) are still sonically superior to high-resolution streamed content. "Digital audio received from a computer/internet via USB sounds," says Paul McGowan of PS Audio, "remarkably different than the exact same bits received from a transport. It is not the veracity of the bits but all the baggage (noise and jitter) associated with the gathering and delivery of those bits that makes the sonic difference." There are enough other very smart cookies (the folks at MSB, Soulution, and Kalista, for examples) who share this view to justify the inclusion or addition of a disc drive in a high-end digital system.

I'm not digital enough to offer a fully informed opinion on this subject, but on the basis of A/Bs of the same music via hi-res streams and physical discs, I found myself leaning in Mr. McGowan's direction. Take, for instance (and only because it is a SACD that happened to be sitting unopened on my rarely used CD/SACD shelves), Mighty Sam McClain's album *Blues for the Soul* on Telarc by way of producer Joe Harley, recording engineer Michael C. Ross, and mastering engineer Bernie Grundman.

Now, I'll confess that I'm not a fan of Mighty Sam nor of this mostly humdrum disc (which I also possess as a

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freebie on vinyl). Musically, everything about it is unchallengingly predictable or outright dull. And yet! Listening to the SACD through the DreamPlay XC's disc player and DAC (via the fabulous new Soulution 727 linestage preamp and a pair of Soulution 711 stereo amps driving—to perfection, BTW—the superb MBL 101 X-Treme MKII loudspeakers), the presentation was so sumptuously rich, full, continuous, and complete that I was momentarily astonished. Oh, the arrangements were still unimaginatively conventional, McClain's phrasing rote and characterless, but the sound, folks…well, the sound on the SACD was great, as analog-like (and lifelike) as I've heard from anything digital.

Walter Platt, Chuck Langford, Kenny Wenzel, and Joe Cassano's horns and winds really did have the burnished brassiness of actual trumpets and trombones and the mellow roundedness of actual saxes—not just the wind-through-the-willows breathiness, not just the lips and tongues on reeds and mouthpieces, not just the cutting speed on starting transients, but the solid, three-dimensional body, the dense tone color, and the dynamic sparkle and effervescence of the real things. Barry Seleen's Hammond B-3 was just as impressively opulent in color and three-dimensionally "there" in space, while Tim Ingles' big, forward, deep-reaching electric bass notes were as dark, sweet, and tangible as ripe plums. This just wasn't digital as I thought I knew it—even though concocted in a studio, this was an analog-like soundfield where instruments were blended as if they were being played and recorded together rather than separately.

Switching over to hi-res streaming via Qobuz was, once again, a shock. I'm used to streaming; I've grown to like it (or, at least, to tolerate it). But in comparison to the physical disc, the sound of the Qobuz stream of *Blues for the Soul* through the Dream-Play XC DAC (at least mediated by mConnect) was like the taste of a glass of 2019 Chateau De Beaucastel Chateauneuf-Du-Pape Hommage à Jacques Perrin into which some fool has poured an equal amount of tap water. Everything was weakened, watered down, diluted in color, flattened in body, made ordinary, listless, digitally flavorless.

This is not to say that the DreamPlay XC is inadequate on streamed music. It is not—everything depends on the quality of the transfer and the stream. You'll find a great recording like Hans Theessink's phenomenal *Jedermann Remixed: The Soundtrack* [Blue Groove Records] sounds gorgeous and lifelike and complete in its own right. Theessink's gruff, Waits-like baritone and superb pick-and-slide guitar work have nearly the same lifelike presence, weight, three-dimensionality, and color as Mighty Sam's voice and rhythm section on the SACD *Blues for the Soul*. Nearly the same, I say, but not quite the same. Through the DreamPlay XC, CDs or SACDs, or the ones I listened to, still held a sonic edge over most streams. Which raises the troubling question of whether many of us may be kidding ourselves (at least in part) about hi-res streaming. God knows, it is addictively convenient. But, as I've said before, convenience is all too often the altar upon which the virtues of the past are sacrificed. As audiophiles, we may be giving up a higher measure of fidelity and pleasure just to make our lives a little easier. (On the other hand, it may also be that the Dream-Play XC is simply the best disc-player/DAC currently on the market.)

As a digital preamp, the DreamPlay XC is good, though I wouldn't trade my Soulution 727 for it. (For one thing, it can only handle digital signals—and those through a somewhat restricted number of inputs.) As a CD/SACD player/DAC, it is, as noted, downright reference quality—a superb component. As a streamer, it is also first rate on well-recorded, well-transmitted hi-res material, though its sound varies with the quality of the source, and its inability to make use of Roon for streaming is, IMO, a flaw.

So…with sonics that are similar to that of my reference Soulution 760, it would be hard *not* to recommend the DreamPlay XC, especially since it also includes state-of-the-art disc playback. If you've got the dough for this gorgeous French number, you really should give it a long listen, particularly with physical media. It may be that you'll find, as I did, that with CDs or SACDs nothing else (in a single box) favorably competes or compares.

Bottom line: The Kalista DreamPlay XC will be one of my candidates for Product of the Year and, as a CD/SACD player/DAC, a new reference that in many ways resets the rules of the game. tas

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# Norma Audio Revo IPA-140 Integrated Amplifier

## Italian Masterpiece

Wayne Garcia

**I recently revisited a book so rich in historical detail** and visually evocative that one feels as if air-dropped onto the unpaved, rough-and-tumble, frequently plague-ridden streets of 15th-century Florence.

Authored by Ross King, *Brunelleschi's Dome: How a Renaissance Genius Reinvented Architecture* spins a tale of political intrigue, back-stabbing rivalries, and the engineering brilliance essentially invented step-by-step by Filippo Brunelleschi as he designed what remains the largest masonry dome ever built, that of the cathedral of Santa Maria del Fiore—known to most of us simply as *Il Duomo*.

Given Italy's exceptional history in the fine arts, as well as the country's impact on modern commercial design—from automobiles to furniture, espresso machines to fashion—it's little wonder that high-end Italian audio components are likewise striking things to behold. A prime example is the Norma Audio Revo IPA-140 integrated amplifier reviewed here.

Founded by Enrico Rossi, Norma Audio dates to 1987 with the release of its first amplifier. But things truly began to take shape a few years later when the company was acquired by Opal Electronics, a maker of electronic measuring devices.

With a new arsenal of tools at his disposal, Rossi began a multi-year exploration of the myriad ways in which electronic circuits, power supplies, and component parts interact can either enhance or degrade music reproduction.

Based in Cremona and steeped in that city's history of exceptionally fine fiddle makers, Rossi and his team at Norma aim to merge their sophisticated technical know-how with a keen sensitivity to music. As the company's website states: "The result of this endeavor is a unique sound, which represents a synthesis of parameters usually set one against each other: dynamics, speed, and absolute transparency are combined with extraordinary musicality and total lack of listening fatigue."

That aesthetic was combined with the industrial design talents of Livio Cucuzza—currently Chief Design Officer for the McIntosh Group. You might even say it was fated.

Growing up in Sicily, Cucuzza's father owned an audio shop, and Livio has described how his passion for audio and its visual design was triggered by being introduced when young to gear from companies such as B&O, Braun, and Brionvega—surely the brands of choice for George Jetson in his Skypad apartment.

After studying industrial design in Milan, Cucuzza began his career working for Lego, but the audio field remained a passion. For three years he took freelance commissions from several audio firms, before joining Sonus faber in 2010. (Sonus faber's now parent company is the abovementioned McIntosh Group, which also encompasses McIntosh, Wadia, Sumiko, and, until recently, when it sold the brand, Audio Research, which recently changed hands yet again.)

Some of Cucuzza's earlier freelance work was for Norma Audio, including the piece under review here, the company's top-of-the-line $9600 Revo IPA-140 integrated amplifier (which I'm told is the unit's fifth incarnation, though Norma doesn't make much fuss about that, as the original model's designation reflects).

A cornerstone of Norma's design philosophy is a dedication to low-noise, fast, and ultra-wide-bandwidth circuitry. In the case of the Revo 140, the latter is spec'd at a double-take-inducing >2MHz. That's *megahertz*, or greater than two million hertz. Uh, yeah, that's pretty wide bandwidth alright.

Power-wise, as the unit's name implies, the Revo delivers a healthy 140Wpc into 8 ohms, and doubles that to an impressive 280Wpc into a 4-ohm load, something I came to appreciate with my power-hungry, 4-ohm Magnepan 1.7i's.

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## Specs & Pricing

**Power output:** 140Wpc into 8 ohms, 280Wpc into 4 ohms
**Inputs:** 4 RCA, 1 XLR balanced, mm/mc phono (optional), 1 USB DAC (optional)
**Dimensions:** 16.9" x 4.3" 14.4" (excluding feet, knob, and rear jacks)
**Weight:** 55 lbs.
**Price:** $9600

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Peeking inside the chassis reveals a dual-mono configuration—two mirrored circuits beautifully constructed within the non-magnetic aluminum enclosure. Powering the IPA-140 are a pair of toroidal transformers, separate power supplies for gain, output, and driver stages, and six per-side MOSFET power devices rated at 150A peak output current. The heat sinks are discretely tucked underneath the bottom and top plates, so they're invisible from both the front and top views.

The rear panel reflects the amp's dual-mono construction, with mirrored inputs accommodating four pairs of RCAs and one set of XLR, as well as optional USB DAC and mm/mc phono.

Cucuzza's minimalist industrial design for the IPA-140 exemplifies cleanliness of line and form following function. Indeed, some may find the Revo a bit austere. Me? I love simplicity of look as well as use. Moving left to right across the amp's brushed aluminum faceplate (your choice of silver or black anodized), you'll find a headphone jack, a large gleaming silver volume knob, a small pushbutton input selector, and a tiny array of LEDs indicating the selected input. That's all, and all you need. The supplied remote naturally echoes these functions.

Sonically, the Revo is powerful enough to effortlessly drive the great majority of today's speakers, but its inherently neutral balance and understated sonic elegance mean it's no brute when it comes to expressing musical nuance. And as mentioned above, effortless power is something one really appreciates with speakers like Magnepans, which truly sing with enough juice to get them on their feet.

For example, listening to the great-sounding EMI LP of Klemperer's Mahler Second, I was notably drawn into the way the Norma's power and dynamic layering ushered the symphony through the architectural brilliance of Mahler's sprawling and wildly fluctuating score: From the hushed beauty of the "Urlicht" movement, where the orchestra and mezzo at times rise from almost unimaginably hushed silences, into the labyrinthian, lengthy fifth, with its myriad shifts in tempi, dynamics, and mood, as well as orchestral and vocal forces, to the full-throttled climax wherein all converge to unleash massive waves of sound, the recording proved to be a thrilling ride with the Norma.

Never did the sound become strained, ragged, disjointed, or at all fatiguing. In fact, there were times when I wondered if my Maggies could keep up. But one very nice thing about current Magnepans—at least in my experience—is that, unlike earlier iterations, where you could "bottom out" the Mylar diaphragm against the magnetic screen, these panels seem capable of much greater SPLs.

Balance-wise, I found the Norma to be tonally quite neutral. While not leaning toward the warm spectrum, neither does it sound cold or clinical. Indeed, the IPA-140 is one of those components that pretty much gets out of the way and lets the music do its thing.

One will notice, say, during the lilting Andante of the Mahler Second, that the Revo may not deliver quite the burnished mahogany warmth of the string sections, the golden richness of the brass, or quite the air or depth of the finest separates, but it does come within striking distance, while surfing the dynamic waves with aplomb.

The Mahler Second also allowed the IPA-140's top-to-bottom coherence to shine, something critical to true high-end performance. From the opening fury of the bowed basses to the chamber-like wind and harp passages, right through to the organ-powered finale, the full frequency spectrum always came across as sounding complete, cut from whole cloth, as they say.

In addition to the Maggies, I also had the chance to hear what the Norma could do when paired with a fine set of cone speakers, in this case the excellent Rosso Fiorentino Pienza stand-mounted two-way I reviewed in last year's July/August issue.

Inherently warmer sounding than my 1.7is, the Pienza was equally adept at showing what the Revo can do. For example, on *Thelonious in Action* (Analogue Productions' 45 pressing), an exceptionally live-sounding club-set from 1958 that's one of my go-to LPs, cranking "Blue Monk" up to something close to you-are-there volume unleashed this band's sweaty, let 'er rip energy. Monk's famously jabbing, percussive piano playing, Roy Haynes' rat-a-tat snare work—and his rollicking, ricochet solo near the tune's conclusion—and Johnny Griffin's fat, reedy-sounding, blues-drenched sax transported me some 65 years back in time.

Some of Lucinda Williams' finest singing of the past decade can be heard on the Charles Lloyd and the Marvels + Lucinda Williams LP *Vanished Gardens*. The group's take on the closing track, a shimmering, beautifully sensitive rendition of Jimi Hendrix's "Angel," again proved the Revo to be a most graceful portal to the music.

Indeed, in my months with this outstanding design I came to the conclusion that for those who prefer the compact footprint of an integrated versus separates, who seek versatility of choice with its input options, and, most of all, listeners seeking an amplifier capable of both high power and musical nuance, the Norma Revo IPA-140 is something of a must-audition.

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# Monitor Audio Platinum 300 3G Loudspeaker

## A Lot of Speaker per Dollar

Andrew Quint

**At least for the next few years, it looks like I've got** speaker wrangling covered. Last summer, my 35-year-old nephew moved to Philadelphia with his fiancée who was starting her OB/GYN residency at a hospital close to where my wife and I live as empty nesters. Needless to say, Mark has plenty of evenings to himself and will gladly take a companionable home-cooked meal as compensation for an hour of unboxing and positioning a pair of unwieldy loudspeakers.

One spring evening, with dinner in the oven, Mark and I extracted the Monitor Audio Platinum 300 3Gs from their carefully considered packaging. This was hard work as the 300 3Gs—the "3G" stands for "third generation"—are substantial loudspeakers, a bit over 118 pounds each. In addition to being massive, their appearance is stunning—four forward-facing drivers intimated power and purpose; a flawless high-gloss piano black finish denoted a luxe product.

"What do these things cost?" my non-audiophile nephew wanted to know. The answer was $17,900. Having now seen the speakers, I was surprised by that amount, especially knowing that these big boys had to get to North America by crossing an ocean, an ever more expensive undertaking. I'm not saying that $17,900 is chump change—for most people, it certainly is not. But audio hobbyists are well aware of an ongoing escalation of the prices of high-end products that relates to the rising costs of parts, labor, and distribution. How many current Wilson Audio Specialties floorstanders come in at $17,900 or less? That's right: None. Unheard, the Platinum 300 3G seemed like a lot of speaker for the money.

The Platinum 300 3G's cabinet approximates a rectangular box that stands 44.5" tall. The width tapers gently from front to back, from 11.25" to 8.5"; the front baffle bows out slightly while the rear surface is concave. The enclosure is fabricated from laminated layers of MDF with the front baffle 36mm in thickness and the rear panel between 18 and 22mm. Sixteen layers of lacquer are applied to the surface to produce a sumptuous gloss

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## Specs & Pricing

**Type:** 3-way ported loudspeaker
**Driver complement:** One MPD III high-frequency transducer (AMT), one 4" RDT III midrange driver, two 8" RDT III bass drivers
**Frequency response (free-field):** 25Hz–60kHz (-6dB)
**Nominal impedance:** 4 ohms
**Sensitivity:** 88dB
**Dimensions:** 16.9" (includes outrigger base) x 44.5" x 20.6"
**Weight:** 118 lbs.
**Price:** $17,900

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finish—piano black, piano ebony, and satin white are options. Etched inlays in front, near the bottom, and on the top surface elegantly present the brand name and logo.

Monitor Audio has just one loudspeaker "above" the Platinum 300 in its expansive product line, the recently introduced Hyphn, an assault-on-the-art undertaking with an acrylic stone enclosure, 11 drivers per side, and a price tag of $95,000. It was demonstrated at High End Munich 2022 as the Concept 50, to honor of the British company's Golden Anniversary. Many engineering innovations found in the Hyphn have "trickled down" to the current Platinum Series models, especially the transducers. The 300 3G is a three-way, four-driver design with crossover frequencies specified as 3kHz and 650Hz. The high-frequency element is Monitor's new version of an Air Motion Transformer (AMT)—the company calls it the "Micro Pleated Diaphragm III" (MPD III). The Monitor-designed tweeter extends to 60kHz (compared with 40kHz for typical AMTs) and features a square radiating area that delivers equal directivity in the horizonal and vertical planes, reportedly improving soundstaging. The AMT diaphragm is mounted in a waveguide to control directivity as well as better matching of the radiation impedance.

Also new, and first introduced in the Concept 50 project, are the midrange and bass drivers. They're the latest iteration of Monitor's "Rigid Diaphragm Technology" cones, the RDT IIIs. The sound-producing membrane has a sandwich construction, with a honeycomb Nomex core situated between C-CAM (Ceramic-Coated Aluminum Magnesium) and double carbon-fiber layers to reduce breakup. The cone edge profile is optimized to extend the drivers' passbands, and a new rubber surround further helps reduce breakup. The drivers are held in place with cast-aluminum rings that solidly couple the drivers to the baffle. Monitor is quite proud of the pistonic behavior these updated drivers manifest, especially when employed with improved surrounds and spiders. These improvements extend the drivers' bandwidths which enabled crossover improvements in the new series.

The 4" midrange gets its own sub-enclosure and is ported to the rear, as are the two bass drivers, which operate in parallel. Port plugs are provided in case the bottom end is too much for your room—the in-room bass response is given as 17Hz ±6dB. No loudspeaker grilles are provided, other than the metal mesh covering the tweeter.

Around back are two sets of 5-way binding posts, the pairs connected by robust jumper cables. Spaced vertically from top to bottom on the rear aspect of the speaker are three large metal screws that will tighten/loosen horizontal retention bolts that more tightly secure the drivers to the chassis, reduce cabinet resonances, and provide additional internal bracing. Should the bolts become loose during shipping (or simply with the passage of time), it's a simple matter to tighten them with the supplied tool, going a quarter turn past snug, as directed by the user's manual. The idea is the same as with Magico M Series loudspeakers, though Magico owners are supplied with an automotive-quality torque wrench to cinch down back-to-front bolts to a specified tension.

An integral outrigger base keeps these heavy floorstanders stable, and Monitor has devised a clever system for leveling the speakers. The top surface of each of the four footers is a thin metal disc that's held magnetically to the foot's main structure. This lid is easily removed with a fingernail to uncover the leveling mechanism: a supplied Allen wrench is inserted into a central slot to raise or lower the assembly, with or without spikes. The feet are newly designed for the G3 series.

In my 225 square-foot room (the ceiling height ranges from ten to eleven feet) the Monitor Audio Platinum 300s were ultimately positioned 29½" from the shelving behind them and 85" apart from the center of the driver axis of one loudspeaker to that of its mate. It was 105" from the central listening location to the front baffle of each. I auditioned the 300 3Gs with exclusively digital source material—discs, local files, and streamed music—employing a Sony 110-0ES universal player for CDs and SACDs, a Baetis Reference 3 server, and Theoretica Applied Physics' BACCH-SP. The DAC for all three was that in the Tidal Audio Contros controller; the Contros fed a pair of Tidal Ferios monoblocks. Analog wires were Siltech 880i balanced interconnects and 880L speaker cables. (I briefly experimented with bi-wiring, using two pairs of T+A Speaker Hex cables and, in this instance, heard no appreciable advantage.) Digital cables were Wireword (AES/EBU) and Apogee Wyde eye (SPDIF).

In ancient times—that is, seven or eight years ago—if you needed to break in a pair of loudspeakers, you'd select a

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CD with lots of dynamic bass information, insert it in your disc player's drawer, and push infinite repeat. A few days later, you'd have speakers that were well on their way to sounding as their manufacturer intended. For quite a while, I used a Tom Jung-engineered album, guitarist John Tropea's *NY Cats Direct*. It got the job done all right but, boy, did I get tired of those nine songs. Nowadays, thanks to streaming, the task is so much more pleasant for an audiophile, not to mention loved ones who must share his acoustic environment. I call up a suitable selection from the NAS and just let the Roon Radio algorithm do its thing: *dozens* of suitable high-energy electric jazz tracks follow the initial choice. Actually, I love this stuff—and so did the Platinum 300s. From Jeff Lorber to Larry Carlton, Brian Bromberg to Nathan East, Spyro Gyra to Yellowjackets, the Monitor Audios delivered soul-satisfying punch from electric bass and kick drum, transient crispness from keyboards and guitars, and a full-bodied reediness from alto sax, evidently the preferred weapon of fusion horn players.

With orchestral and wind ensemble Power Music (as the late, great Harry Pearson would call his preferred classical repertoire) the Platinum 300s never shrank from a challenge. Classic albums like the Telarc *Firebird* (Shaw/Atlanta) or *Pomp and Pipes* (Fennell/Dallas Winds, recorded by Keith Johnson for Reference) impressed with their effortless presentation of scale and space as much as they did decades ago when they were ubiquitous demo discs in audio showrooms. There was authoritative ensemble weight without any need for a subwoofer. Though I'd had some initial skepticism, ultimately, the in-room low frequency specification of 17Hz (-6dB) seemed plausible.

As imperturbable as the Platinum 300s are with dynamically demanding material, they are also capable of parsing subtleties of instrumental and vocal color. On another Prof. Johnson gem, an all-Saint-Saëns program from Michael Stern and the Kansas City Symphony, the main attraction is the "Organ" Symphony, but the two make-weight fillers are equally treasurable, especially the *Introduction and Rondo capriccioso* for violin and orchestra. With then-concertmaster Noah Geller as soloist, the performance was warmly affecting, in large part because every nuanced modulation of tone production was perfectly rendered by the Monitor Audio loudspeakers. Along the same lines, when Gerard Schwarz plays Gunther Schuller's old-timey *Stars in a Velvet Sky* on cornet, the speakers accurately represent the sweeter, more burnished sound of that instrument, as contrasted to the more brilliant brassiness of a trumpet. The same kind of faithfulness to the character of the most characteristic vocal instruments—Frank Sinatra or Billy Holiday, Dietrich Fischer-Dieskau or Anne Sofie von Otter—was also apparent.

Given this degree of tonal verisimilitude with solo instruments and vocalists, it was unforeseen that the speakers didn't achieve the very highest level of transparency with ensemble recordings. The successful playback of Ravel's String Quartet in F major (the Mandelring's very well-recorded version on Audite, for instance) must capture the rapidly shifting shadings of light and shadow, something that loudspeakers with a leaner tonal signature may deliver more readily. Similarly, listening to several versions of Dvořák 's Wind Serenade in D minor, I found the full group sound—oboes, clarinets, bassoons, horns, cello, and double bass—to be too homogenized to fully engage with the work's bucolic spirit.

I had another observation, this one about the "speed" of the Platinum 300s—how quickly sounds that were not simultaneous but adjacent temporally would or wouldn't overlap. This can be especially evident with rapid keyboard passagework, and there's no more difficult test for a loudspeaker than the super-virtuoso Marc André Hamelin's own composition, an extraordinarily difficult piano étude entitled *Essercizio Per Pianoforte (Omaggio A Domenico Scarlatti)* that's included on his 2001 release *Kaleidoscope*. I wouldn't go so far as to call the MA's rendering of Hamelin's Scarlatti tribute as "smearing," but there are speakers, generally considerably more costly than the Platinum 300s, which can fully keep up with the pianist's astounding technique.

These minor qualifications should not dissuade any audiophile with a loudspeaker budget of $25k or less from investigating thoroughly the current version of the Monitor Audio Platinum 300 3G. Is it realistic to expect the Platinum 300s to match *every* performance parameter of products costing three, five, or ten times as much? The speaker accomplishes what it does honestly, without smoke and mirrors. It's a thoughtfully designed and beautifully built product that's imperturbable with dynamic and bass-endowed source material, and a faithful communicator of musical color and character. It's truly a remarkable value—a lot of speaker per dollar. tas

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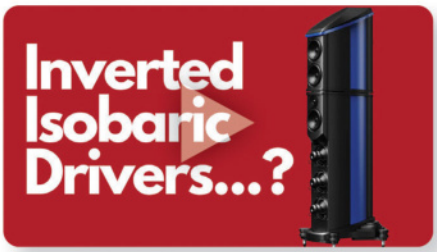


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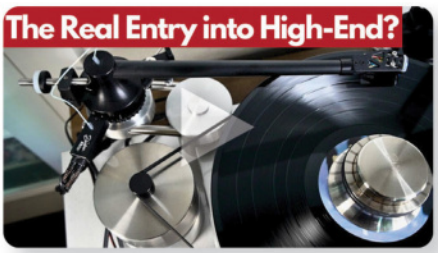


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Theory + Application
S 540

# A RADICALLY DIFFERENT APPROACH TO LOUDSPEAKER DESIGN

BY ROBERT HARLEY

# elektroakustik Solitaire Loudspeaker

photos by Matt Wrightsteel

IN 1978, a young man named Siegfried Amft was about to be graduated from technical university when one of his professors, Dr. Fritz Sennheiser (yes, *that* Sennheiser), encouraged the young man to start his own audio company. Immediately upon graduation Siggi, as he liked to be called, founded a company whose name reflected his engineering-driven approach to audio design—Theory and Application elektroakustik, or T+A for short.

T+A quickly established itself as one of Germany's premier loudspeaker manufacturers through a combination of technical innovation and high value. The company was extremely successful in Germany and throughout Europe, expanding its product line to include a full suite of electronics. In fact, T+A became Germany's largest high-end audio electronics manufacturer. Today, the company employs 80 people, including 14 engineers (all with engineering degrees), and its products are distributed in more than 50 countries.

T+A became so successful that Siggi spent most of his time managing the business rather than designing speakers, his overarching passion. But with Siggi's son Conradin recently installed at the business' helm (after earning a master's degree in entrepreneurship and gaining experience working in other industries), Siggi was freed to return to his first love—speaker design. Now, having the time to devote to invention as well as the resources of a successful company, Siggi could develop the speaker he'd long conceptualized—the $54,900 Solitaire S 540 reviewed here.

The S 540 is the embodiment of several interesting ideas Siggi has developed about how a loudspeaker should behave in real-world listening environments—a customer's living room. Consequently, the S 540 looks and behaves very differently than standard "cones-in-a-box" designs or dipole models.

Throughout his career, Siggi has been a champion of electrostatic and planar-magnetic drivers and has developed many electrostatic-based products. For example, he developed a hybrid dynamic/electrostatic speaker back in 1984. Siggi now favors planar-magnetic drivers for their greater reliability, particularly in humid climates where electrostatics are likely to arc and destroy the diaphragm. Clearly, his ambitious new speaker would incorporate his latest thinking on planar-magnetic-driver design.

**THE S 540 LOOKS AND BEHAVES VERY DIFFERENTLY THAN STANDARD "CONES-IN-A-BOX" DESIGNS OR DIPOLE MODELS.**

In a nutshell, the S 540's unusual driver complement produce a very different dispersion pattern than just about any other loudspeaker. Specifically, the S 540 has very narrow horizontal and vertical dispersion in the midrange and treble, meaning that the sound at the listening position (above about 200Hz) is nearly all direct sound from the speaker with very little room reflections. Unlike a full-range open-baffle planar that also has a narrow horizontal and vertical dispersion, the S 540 is a monopole, directing all its acoustic output directly in front of the speaker to the listening position.

The unusual driver array is the key to the S 540's behavior. The front panel houses a 33.5"-tall planar-magnetic tweeter (T+A calls it "magnetostatic") coupled to seven tiny oval midrange drivers arranged in a vertical line alongside the tweeter. A vertically stacked array of drivers, called a "line array," radiates sound in a cylindrical shape in front of the speaker rather than in a spherical shape as a single point-source driver does. The midrange line array's cylindrical radiation pattern mimics the planar-magnetic tweeter's cylindrical radiation pattern. The tall and narrow tweeter naturally radiates in a cylindrical pattern because of its shape. T+A calls this approach "Cylinder Wave Technology." The company didn't invent the concept (the physics have been known for decades), but there's been a newfound interest in the idea—line arrays have recently revolutionized the live-sound industry. There's an interesting video on YouTube called "Why Music Festivals Sound Better than Ever" explaining how line arrays work and why they have replaced point-source speakers for live sound reinforcement.

T+A asserts that room reflections are a significant source of sonic degradation; reducing those reflections through the S 540's design confers significant benefits, it asserts. In a traditional speaker, sidewall and ceiling reflections combine with the direct sound at the listening seat, creating a pattern of narrow cancellations and reinforcements (called "comb filtering"). It's called comb filtering because the frequency response looks like a comb—a series of very narrow, closely spaced peaks and dips in the response created by the constructive and destructive combination of two signals that occurs when one

**RESOLUTION IS MANIFESTED AS A WEALTH OF INNER DETAIL IN THE TREBLE, BOTH IN TIMBRE AND DYNAMICS.**

is slightly delayed relative to the other. This phenomenon distorts music's timbres, introduces phase shifts, and destroys spatial cues encoded in the recording that degrade soundstaging, among other deleterious effects. In my own experience, absorbing or diffusing sidewall reflections is the single most important acoustic treatment you can deploy (with conventional loudspeakers).

It's interesting to note that this design is diametrically opposed to the omnidirectional approach favored by MBL, most notably in its 101 X-Treme MKII reviewed by Jonathan Valin two issues ago (October 2023). As you can read in Jonathan's comprehensive analysis, MBL believes that room reflections (if tonally identical to direct radiation) contribute to a more accurate representation of the original acoustic event. But as with many things in audio, opposing approaches can yield exceptional results from each school of thought—think of single-end triode amplifiers and dreadnought solid-state designs, for example. I address this larger question in this issue's From the Editor.

Bass is reproduced by four 8.6" side-firing woofers that are mutually braced inside the sealed cabinet. A smaller version of the S 540, called the S 530, employs the same midrange/tweeter driver complement, but with two woofers per speaker rather than four and a smaller cabinet. The entry level in the three-model Solitaire line, the Solitaire S, has a shorter version of the planar-magnetic tweeter, front-firing woofers, and a ported enclosure.

The S 540 is supplied in mirror-imaged pairs so that each speaker's planar-magnetic tweeter can be positioned on the outside edge.

The woofer-to-midrange transition occurs at 180Hz, a typical figure, But I was surprised to discover that the S 540's tweeter is crossed over to the midrange at a very low 1.8kHz. A more typical crossover frequency is 2.8kHz–3kHz. The S 540's low crossover point is made possible by the tweeter's sheer size and high power handling. This low crossover frequency means that much more of the midrange frequencies, particularly the range of the human voice and instrumental overtones, is reproduced by the planar-magnetic driver rather than by the cone midrange drivers. Moreover, the transition between drivers is

shifted lower, away from the frequency band where the ear is the most sensitive.

Two sets of binding posts are provided for bi-wiring or bi-amping. Just above the rear-panel input terminals are three three-way toggle switches that allow the user to adjust the speaker's tonal balance. Specifically, you can independently boost or cut the bass, midrange, or treble by ±1.5dB.

The enclosure is made from a combination of MDF side and rear panels, along with a baffle machined from aluminum billet. The enclosure volume is a large 120 liters. The S 540 is available in three finishes, black, silver, and macassar wood. Metal grilles attach magnetically, although I left them off for the review.

See the sidebar for technical details of the design, particularly that of the extraordinary in-house-developed planar-magnetic tweeter.

## Listening

I unpacked and set up the S 540 myself, which turned out to be a bit of a challenge for one person. Each speaker weighs 176 pounds. The speaker is shipped with a machined aluminum plinth that bolts to the speaker bottom and provides outrigger supports into which four robust spikes are threaded. T+A has posted on YouTube a video showing the uncrating and assembly process. Note that the video is of two rather large gentlemen setting up the smaller S 530 model. One person setting up the larger S 540 is more challenging than the video depiction, as I learned. Setting up the S 540 is a two-person job.

About a week after I dialed-in the speakers, industry veterans James Shannon and Dave Nauber from T+A visited to hear the system. They proclaimed that everything sounded as it should without further tweaking. I shot a video of Jim explaining the company's history and design of the Solitaire S 540. You can find that video and many others (nearly 200 and counting) on *The Absolute Sound*'s YouTube channel. There's also an extended video in which I describe my room's acoustic design and construction and a companion video in which I take you through all the components in my reference system.

I drove the S 540 with a single channel of the CH Precision M10 amplifier as well as in passive bi-amplification mode, with one channel of each M10 driving the woofer section and one channel of each amplifier driving the midrange-treble section. In addition to being configurable as a stereo, mono, or bi-ampable amplifier, the M10 allows you to adjust the amount of feedback in 1% increments to fine-tune the system.

The S 540 is especially sensitive to listening height, but that is only an issue with an unusually high or low listening seat. You can immediately hear the S 540's narrow vertical directivity simply by standing up and hearing an instant reduction in sound pressure. I found that a very small amount of toe-in, say 5–15°, was ideal. Any more than that and the sound became overly bright. Unlike many speakers, the S 540 didn't need much toe-in to realize a strong and stable central image. Many speakers with a conventional radiation pattern benefit from a lot of toe-in because increasing the toe-in reduces the amount of energy reflected from the sidewalls. After running the speakers at high volume at night and whenever I wasn't in the listening room/office to break them in, I did the final setup, which included experimenting with the three rear-panel tonal-balance switches. As mentioned, you can independently boost or cut the bass, midrange, and treble levels by ±1.5dB. After a lot of back-and-forth listening, I ended up with the controls set in the flat position, although some bottom-heavy music benefited from attenuating the S 540's generous low end.

Listening to music through S 540, it was immediately apparent that this is a planar design, not a conventional cone-based speaker. What gave it away? That unmistakable sense of immediacy, of lifelike presence, of resolution in the treble, and of transient speed that are the hallmarks of planars. I was surprised considering that the S 540 is essentially a dynamic-driver design with a planar-magnetic tweeter, but the S 540 sounded remarkably like a full-range planar.

Dynamic-driver speakers with a ribbon or planar-magnetic tweeter often sound like a dynamic-driver speaker with a planar-magnetic tweeter—the planar's characteristics are apparent only in the treble. But my strong impression of the S 540 as sounding planar-like through the midrange and treble is attributable, I think, to three factors. The first is that, unbeknownst to me at the time, the tweeter crosses over to the midrange at a very low 1.8kHz. Consequently, much more of the midrange is reproduced by the planar-magnetic driver than occurs with a dome tweeter crossed over at a typical 2.8–3kHz. Second, the seven midrange drivers are tiny and have ultra-light diaphragms, allowing them to match the planar-magnetic tweeter's exceptional speed more closely. Third, the arrangement of the midrange drivers in a line array creates a radiation pattern that emulates the line-source tweeter's cylindrical radiation pattern. This helps the two disparate drivers to sound more alike. As a result, the design produces a seamless blend that is often lacking in speakers with a small planar-magnetic tweeter coupled with a single cone midrange that creates a spherical rather than a cylindrical radiation pattern.

In addition to sounding like a full-range planar, the S 540 exhibited absolutely no discontinuity between the 33.5" planar-magnetic tweeter and the array of seven tiny oval dynamic drivers. It sounded "of a piece" from top to bottom, an extremely challenging hurdle for designers of hybrid loudspeakers. In fact, this transition has historically been the Achilles' Heel of hybrid designs.

**A SENSE OF RAZOR-SHARP SPEED, EQUALLY FAST DECAY, AND A FEELING OF WEIGHT BEHIND THE TRANSIENT.**

I'll say right up front that the S 540's 33.5" planar-magnetic driver, designed and built in-house by T+A, is a fabulous transducer. It is the foundation of the speaker's defining characteristics. That foundation is one of the high resolution, transient speed, and lifelike presence that come so naturally to planar drivers. That resolution is manifested as a wealth of inner detail in the treble, both in timbre and dynamics. Listening to familiar music, I heard newfound details in delicate cymbal and hi-hat. On the beautiful composition "My Way Home" from sax player Gary Meek's album *Good Friends*, during the gentle and lyrical melody the drummer plays a figure on the hi-hat that complements the phrasing. The hi-hat was infused with texture, micro-transients, and a sense of realism that eludes most speakers. Rather than sounding like undifferentiated bursts of high-frequency transient information, the hi-hat sounded as you hear it live, with all its delicate detail fully resolved. All throughout the listening, the S 540's resolution of treble information, particularly the inner detail of cymbals, was readily apparent. The S 540's finely filigreed top end, with its ability to portray very fine detail with alacrity, brought music to life. The resolution was enhanced by the S 540's transient speed—the ability to convey the steepness of attacks, from the micro level to the macro. Someone hearing the S 540 may not specifically identify this greater transient fidelity and resolution; rather, they may simply experience greater musical realism and, with it, deeper musical engagement.

Percussion was beautifully portrayed, with a sense of razor-sharp speed, equally fast decay, and lifelike weight behind the transient. Many electrostatic and planar-magnetic speakers exhibit this speed and resolution but lack a sense of body and weight. With many planars, transients are quick, but don't have much dynamic impact behind them, leading to the "skeletal" sound that sometimes characterizes the genre. The superbly recorded self-titled album by the band African Guitar Summit features layers and layers of extremely intricate and interwoven percussion patterns played on a wide range of instruments. The S 540's superb transient articulation allowed me to better appreciate this music's sophisticated rhythmic interplay. Accurately reproducing music's transient nature goes a long way toward musical realism.

The S 540 also had a palpable sense of top-octave air, that region not of pitches and notes but rather of the impression that a lid has been taken off the top of the soundstage and of a see-through transparency. Perhaps not coincidentally, the S 540's tweeter extends to 50kHz. In the past I've used electrostatic super-tweeters with my main speakers to extend the system's upper frequency limit and heard a similar expansion of the sense of space and apparently unlimited air and extension.

I must point out that the S 540 has a bit of extra sparkle and brilliance through the treble range. I wouldn't characterize the speaker as bright overall, but recordings with significant energy in a particular treble band—vocal sibilance, the zills of a tambourine, or the upper harmonics of some instruments that are rich in upper-order harmonics such as a soprano saxophone—caused the speaker to highlight the treble. This character contributed to the S 540's sense of openness, life, and resolution, but sometimes at the expense of smoothness. The magnitude was slight; I tried attenuating the treble by 1.5dB with the S 540's rear-panel switch, but this was too much correction for most recordings. The fact that I heard a 1.5dB attenuation as an overcorrection demonstrates that the S 540's liveliness in the treble is minor. Nonetheless, the speaker favors liveliness and resolution over timbral warmth—which, incidentally, is typical of electrostatics and planar-magnetic designs.

Significantly—and surprisingly—the S 540's planar-like sound extended through the entire midband. The human voice was reproduced with startling realism—that impression of the speaker disappearing and the voice existing in space completely detached from the electro-mechanical contrivance creating it. A vocal entrance on a song's first verse after an instrumental opening produced a startling effect—a primal reaction to the brain's belief that another person has just appeared. That quality seems to come naturally to planars, even inexpensive ones like the Magnepan LRS+. It's interesting to note that a female vocal contains most of its energy between 160Hz and 2kHz, with harmonics extending beyond that frequency with decreasing amplitude. That frequency range is exactly the range covered by the seven oval midrange drivers, with the upper harmonics reproduced by the planar-magnetic tweeter. Midrange timbres were crystalline in their purity, liquidity, and freedom from grain. Piano had a bell-like clarity along with remarkable resolution of the instrument's dynamic structure of attack, sustain, and decay. Solo piano recordings captured in a hall also highlighted the S 540's resolution of low-level information as the speaker beautifully conveyed the harmonic structure of chords decaying all the way down to the hall's ambient floor.

The midrange presence and purity combined synergistically with the superb tran-

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## SPECS & PRICING

**Type:** Three-way floorstanding loudspeaker
**Loading:** Sealed
**Driver complement:** 4x 8.6" woofers, 7x 3.5" x 2.3" midrange drivers, 1x 33.5" "magnetostatic" planar-magnetic tweeter
**Frequency range**: 20Hz–50kHz
**Impedance:** 4 ohms
**Sensitivity:** 88dB
**Crossover frequencies:** 180Hz, 1800Hz
**Nominal power rating:** 240W
**Music power rating:** 300W
**Finishes:** Silver, black, macassar wood
**Dimensions:** 12.6" x 58" x 20.5"
**Weight:** 176 lbs. each
**Price:** $54,900

**T+A ELEKTROAKUSTIK GMBH & CO. KG**
Planckstraße 9 - 11
D - 32052 Herford, Germany
+49 (0)52217676
info@ta-hifi.com
ta-hifi.com

**T+A NORTH AMERICA**
2800 Saint Marys Road
St. Marys, Georgia 31558
hello@tahifi-na.com

**Associated Equipment**
**Analog source:** Basis Audio A.J. Conti Transcendence turntable with SuperArm 12.5 tonearm; Air Tight Opus cartridge; CH Precision P1 phonostage with X1 power supply; DS Audio ST-50 stylus cleaner, DS Audio ES-001 Eccentricity Detection Stabilizer, Levin record brush, Degritter ultrasonic LP cleaner
**Digital source:** Wadax Reference DAC with Akasa DC cables, Wadax Reference Server with Reference PSU, UpTone Audio EtherREGEN Ethernet switch
**Amplification:** CH Precision L10 Dual Monaural linestage; CH Precision M10 Dual Monaural power amplifiers
**AC Power:** Shunyata Everest 8000 conditioner, Shunyata Omega and Sigma NR V2 power cords; Shunyata AC outlets, five dedicated 20A lines wired with identical length 10AWG
**Support:** Critical Mass Systems Olympus equipment racks and Olympus amplifier stands; Center Stage² isolation, Arya Audio RevOpods isolation
**Cables:** AudioQuest Dragon interconnects, AudioQuest Dragon Zero and Dragon Bass loudspeaker cables
**Grounding:** Shunyata Altaira grounding system
**Accessories:** The Chord Company GroundARRAY noise reduction
**Acoustics:** Acoustic Geometry Pro Room Pack 12, ASC 16" Round Tube Traps
**Room:** Purpose-built; Acoustic Sciences Corporation Iso-Wall System

sient fidelity to render stringed instruments with superb clarity and life. Acoustic guitar—Hans Theessink on *Jedermann Remixed*, Rodrigo y Gabriela, Al DiMeola on the acoustic trio album *The Rite of Strings* with Jean-Luc Ponty and Stanley Clarke, was particularly realistic because speakers rarely have adequate transient speed to capture the initial attack of plucked strings. The S 540 reproduced that sense of the harmonics ringing in the air after the initial transient. In fact, all stringed instruments benefited from the S 540's combination of attributes. Ruth Moody's *These Wilder Things* has some spirited interplay between acoustic guitar, banjo, dobro, and acoustic bass; the S 540 beautifully resolved each instrument without devolving into blur.

A benefit of the S 540's narrow radiation pattern and concomitant reduction in reflected energy is an extremely precise soundstage. By "precise" I mean that images are tightly focused and exactly positioned. In this regard, the S 540 doesn't sound like other speakers. I could hear precisely where every instrument was located with very fine resolution. A drum kit's tom-toms vividly reveal this spatial resolution. The drum kit's toms can be miked with one mike on each tom, a coincident stereo pair over a few toms, or a single overhead pair that captures the toms and cymbals in stereo. Whatever the miking method, tom fills were spread across the soundstage, with each drum having pinpoint location. Listen to the great drummer Simon Phillips on his album *Protocol II*—the huge kit was vividly portrayed with each of the many mounted toms precisely positioned. Recordings that capture the natural acoustics of the hall were particularly well-served by the S 540's spatial precision. Listen to "*The Cowboys* Overture" from *John Williams at the Movies* (ideally, as a 176.4kHz/24-bit download from Reference Recordings, but the 88.2kHz/24-bit Qobuz version is thrilling as well). The illusion of The Dallas Winds surrounded by the fabulous acoustic of Meyerson Symphony Center was palpable. Depth was also superbly ren-

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**THE STAR OF THE SHOW IS THE FABULOUS PLANAR-MAGNETIC TWEETER, DESIGNED AND BUILT IN-HOUSE BY T+A.**

dered, particularly low-level spatial cues such as reflections from the back of the hall.

My listening room's acoustic treatment was designed for the vast majority of loudspeakers that don't exhibit the S 540's unusual forward-focused radiation pattern. With the S 540, most of the reflected energy comes from the wall behind the listener, not the sidewalls and ceiling. It occurred to me that the S 540 would benefit from absorption behind the listening position. I have some acoustic absorbers and diffusers behind the listening seat, but the acoustics aren't optimized for a speaker with the S 540's radiation pattern. Out of curiosity, I temporarily added to the rear wall four 2' x 4' mid-treble absorbers from Acoustic Geometry. With the additional absorbers behind the listening seat, the soundstage was even more sharply focused, and the imaging precision mentioned earlier tighter.

Finally, the bass from the four 8.6" woofers in the large sealed enclosure was, as expected, extended and powerful. The stereotype of sealed-enclosure speakers as favoring speed and resolution at the expense of warmth and fullness didn't apply to the S 540. I would characterize the bass as a bit on the generous side—not boomy or thick, but full and warm. Pitches were well articulated, making it easy to follow complex bass lines. The S 540 didn't quite extend to organ pedal tones, but the pair powerfully pressurized my room with a satisfying fullness when called upon. On some music, I preferred the S 540 with 1.5dB of bass attenuation engaged via the rear-panel switch. This amount of attenuation was perfect, bringing the bass into perfect balance. On most music, however, I preferred the flat setting. An interesting consequence of attenuating the bass with the switch was an increase in the S 540's wonderful sense of openness, transparency, clarity, and space. The inclusion of the three level adjustments is a wise move, making it much more likely that the S 540 will perform well in your room. In a room smaller than my 18' x 11' x 27' listening space, the Solitaire S 530, with its two woofers per speaker, may be an ideal match.

## Conclusion

The T+A Solitaire S 540 isn't another minor variation on the three-way dynamic loudspeaker. Rather, it is a radically different approach with is 33.5" planar-magnetic tweeter and line array of seven tiny oval midrange drivers. The resulting cylindrical radiation pattern significantly reduces sidewall and ceiling reflections and their deleterious effects. The S 540's timbral purity and ultra-precise soundstaging are likely the result of this design approach.

The star of the show is the fabulous planar-magnetic tweeter, designed and built in-house by T+A. Its large size, extremely wide bandwidth (it is operated from 1.8kHz to 50kHz), high power handling, and superb transient fidelity are the foundation of the S 540's performance. The driver's speed, resolution, and precise articulation are exceptional. I enjoyed these qualities not for their own sake but rather because it is just this kind of resolution that contributes to the sense of realism—of hearing music rather than a recreation of it—that fosters deep musical engagement. There's no mistaking the S 540 for anything other than a planar; cone and dome drivers simply don't sound like this. Moreover, although only the tweeter is a planar design, T+A has somehow managed to pull off the near-impossible trick of making the S 540 sound like a full-range planar, largely

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## DESIGN

The S 540 is a three-way system employing four 8.6" side-firing woofers, seven oval midrange drivers measuring 3.5" x 2.3" arranged in a line array, and a 1" wide, 33.5" long planar-magnetic tweeter. Crossover frequencies are 180Hz and 1.8kHz. All the drivers are developed in-house. The woofers have an optimized cone profile along with a stiffening feature T+A calls the StarStabilizer system, a star-like shape embossed in the aluminum cone to raise the frequency at which the cone breaks up. A newly developed suspension system increases the woofer's linear excursion. The midrange driver diaphragms are also made from aluminum for lightness and stiffness. The small midrange drivers and their ultra-light diaphragms better match the planar-magnetic tweeter's transient speed. Spreading the midrange energy over 7 drivers means that each driver is operated at a very low level, increasing dynamic headroom.

The Mag850 planar-magnetic tweeter, developed primarily by Project Director Max Kirschke, features a precise array of 64 specially shaped neodymium magnets spread out over the driver's length. The conductor bonded to the Kapton diaphragm is nearly 40' long, arranged in a back-and-forth pattern so that the diaphragm is driven uniformly over its entire surface area. The Mag850's diaphragm thickness is measured in micrometers—about the same thickness as kitchen stretch film. The conductor in a planar-magnetic driver that is bonded to the diaphragm is analogous to the voice coil in a dynamic driver but stretched out in straight-line segments. In both driver types, the audio signal flowing through the conductor creates a varying magnetic field that interacts with the fixed magnetic field provided by the magnets, causing the diaphragm to move back and forth to create sound. The advantages of a planar-magnetic driver include extremely low moving mass, which confers superior transient response (the diaphragm starts and stops faster) as well as providing a much larger radiating surface area than a dome tweeter. The Mag850's large size and robust construction allow it to be crossed over at a very low 1.8kHz.

The enclosure sides and rear are made from MDF, with the front baffle machined from a solid aluminum billet. The woofers are arranged opposite each other, and the cabinets are braced at the woofer locations, so that their energy cancels, reducing enclosure vibration. Each crossover section (low-pass, bandpass, high-pass) is mounted on its own board. Two pairs of input terminals are provided for bi-wiring or bi-amping. Three rear-panel switches allow the user to boost or cut the bass, midrange, or treble levels independently.

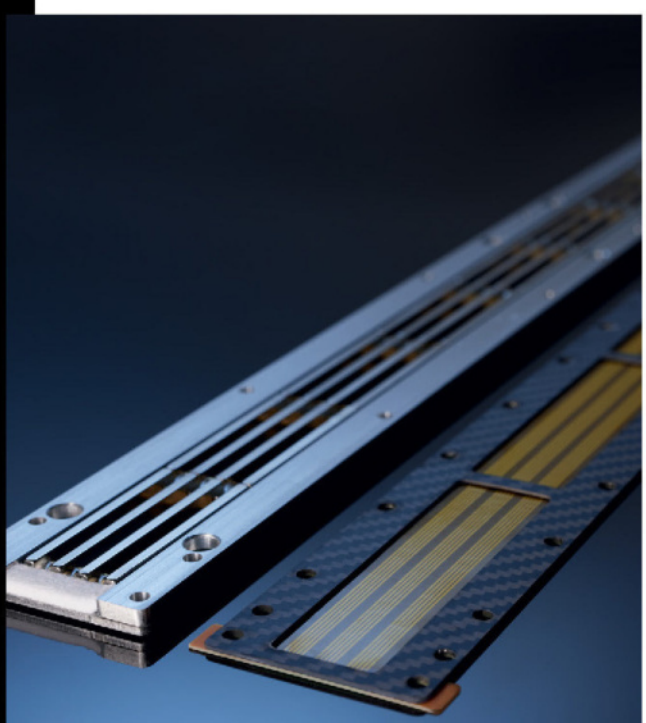
As described in the review, the wavefront generated by the S 540's forward-facing midrange line array and tweeter is concentrated in front of the speaker in a cylindrical shape. The amount of off-axis energy (horizontally and vertically) is very low, resulting in the listener hearing much more direct sound from the speaker and far less sound reflected from the sidewalls and ceiling. Another phenomenon that results from the line array's cylindrical radiation pattern is that sound intensity attenuates linearly as a function of distance (1/d) rather than with the square of the distance ($1/d^2$) as with traditional loudspeakers that produce a spherical radiation pattern. Though the cylindrical radiation patterns begin to transition to a spherical pattern above 12kHz, that is well beyond the range of much musical energy. The side-firing woofers, of course, produce a spherical radiation pattern, but that's not an issue for low frequencies radiating into an enclosed space such as a listening room.

**T+A HAS SOMEHOW MANAGED TO PULL OFF THE NEAR-IMPOSSIBLE.**

because the midrange-to-tweeter transition is utterly seamless.

I have two caveats. The first is that the S 540 has a lively tonal balance, with an emphasis on resolution and detail rather than tonal warmth. The second caveat is perhaps reflected in the S 540's full name—Solitaire S 540. Because of the narrow radiation pattern, the S 540 is best experienced sitting in front of the speakers. This isn't a party speaker, or one that works well if you want to listen to music in the kitchen while cooking, for example. Nonetheless, I spent plenty of time enjoying music sitting one seat away from the sweet spot (I always give the center seat to visitors) and found the S 540 to be wonderfully engaging musically from this position.

The T+A Solitaire S 540 injects some new ideas into the loudspeaker category, delivering a combination of virtues you simply don't hear in conventional box speakers. If you're in the market for a speaker in this price range, I encourage you to audition the S 540. You may find it as musically compelling as I did.



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Q&A

## SIEGFRIED AMFT, FOUNDER OF T+A

**How long had you been conceptualizing the Solitaire series?**

The principle ideas and concepts for our Solitaire Cylindrical Wave transducers were developed 14 years ago. The new generation (S 430, S 530 and S 540) is based on those ideas, but the drivers are completely new developments, taking into account the knowledge we have gained over the years with the first cylindrical-wave loudspeakers. Instead of an electrostatic line source, we use a magnetostatic driver that is only half as wide as the oval shape of the new midrange drivers. That significantly improves the radiation behaviors of the line array. It took nearly one and a half years to develop the cabinets, drivers, and crossovers.

**Describe the S 540's cylindrical radiation pattern and how that differs from that of a conventional loudspeaker.**

Line arrays or line sources consist of multiple individual sound transducers, or a single long diaphragm, generating a cylindrical wave in a specific frequency range. The wave is strongly concentrated in the vertical direction and focuses the energy horizontally in the area in front of the loudspeaker. With a conventional loudspeaker, the sound radiation from the individual drivers is spherical in the lower frequency range and then bundled. As a result, there are very strong reflections from ceilings, floors, and sidewalls in certain frequency ranges.

Sound intensity from a conventional loudspeaker attenuates at a rate of $1/r^2$ (if the distance is doubled, intensity is reduced by four times), but with line-array systems the rate of decline is only 1/r (doubling the distance halves the intensity). The result is that the sound field extends much further, and reflections from ceilings, floors, and walls are either very low or virtually non-existent.

**IT TOOK NEARLY ONE AND A HALF YEARS TO DEVELOP THE CABINETS, DRIVERS, AND CROSSOVERS.**

**Tell us about Solitaire's fundamental design goal of reducing sidewall and ceiling reflections at the listening position and why that is important.**

With a line array or a line source, the radiated waves are interfering in the soundfield to form a quasi-plane wave directly in front of the baffle. Above, below, and to the side, the sound is largely canceled out by interference. This concentrates the energy in the area directly in front of the loudspeakers. The amount of reflected (indirect) sound is very small. The listening experience is substantially more intensive, and the information is not affected by reflected (i.e., indirect) sound mixing with the direct sound and creating delays due to the phase differences.

**You've long been a proponent of planar drivers. Tell us about your history with planars and why you believe they are superior to dynamic drivers or other technologies.**

I developed our first electrostatic tweeter in 1984 for our first Solitaire speakers. It was 5cm wide and 15cm high. Over the years we have developed a wide variety of models, with a curved membrane of 40cm or 90cm in length. We first developed our magnetostatic drivers for our headphones and then extended them to the tweeters of the new Solitaire loudspeakers.

Planar transducers are very complex and therefore expensive but have a decisive advantage: The membrane is driven homogeneously over the entire surface and consequently it does not break up and cannot compress. With the right construction, there is no distortion and enormous sound pressure levels can be generated. The mass of the diaphragm is nearly zero and therefore, the dynamic and transient behaviour is perfect and cannot be matched by any kind of dome tweeter.

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# TAS Reviewer Reference Components

## The following is a list of all the products currently used by our reviewers in their reference systems.

- Acoustic Geometry ProPack 10 acoustic treatments
- Acoustic Sciences 16" Full-Round Tube Trap
- Acoustic Signature Invictus Neo turntable
- Acoustic Signature T-9000 Neo tonearm
- Aesthetix Mimas integrated amplifier
- Air Tight Opus phono cartridge
- Audience 1+1 V5 loudspeakers
- AudioQuest Dragon interconnects
- AudioQuest Dragon loudspeaker cables
- AudioQuest Niagara 5000 AC power conditioner
- AudioQuest Pegasus interconnects
- AudioQuest Thunderbird interconnects
- Audio Research Corporation Reference 6 SE preamplifier
- Baetis Reference 3B server
- Basis Audio "A.J. Conti Transcendence" turntable
- Basis Vector IV tonearm
- Basis Audio 2200 turntable
- Basis Audio SuperArm tonearm
- Benz Micro Gullwing SLR moving-coil phono cartridge
- Burmester 101 integrated amplifier
- Chord Company GroundARRAY grounding device
- CH Precision I1 integrated amp
- CH Precision L10 linestage
- CH Precision M10 power amplifier
- Clearaudio daVinci V2 moving-coil phono cartridge
- Clearaudio Double Matrix Sonic LP cleaner
- Clearaudio Goldfinger Statement II moving-coil phono cartridge
- Claearaudio Master Innovation turntable
- Clearaudio TT1 tonearm
- Constellation Audio Altair preamplifier
- Constellation Audio Centaur power amplifiers (stereo and mono versions)
- Constellation Audio Cygnus preamplifier
- Constellation Audio Hercules power amplifiers (stereo and mono versions)
- Constellation Audio Virgo III preamplifier
- Critical Mass Systems Center Stage$^{2M}$ footers
- Critical Mass Systems Olympus racks and amplifier stands
- Critical Mass Systems Maxxum equipment stands
- Crystal Cable Ultimate Dream interconnects and speaker cables
- Crystal Cable Ultimate Dream power cords
- darTZeel NHB-468 monoblock amplifier
- darTZeel NHB-18NS preamplifier
- dCS Bartók Apex disc player/DAC
- dCS Lina DAC and master clock
- DS Audio W3 optical phono cartridge
- DS Audio EQ preamplifier
- DS Audio ES-001 LP-centering device
- DS Audio Grand Master EQ preamplifier
- DS Audio Grand Master optical phono cartridge
- DS Audio Grand Master EX optical phono cartridge
- DS Audio ION-001 LP-static-removal device
- Fleetwood Sound Company DeVille loudspeaker
- Harbeth Monitor 40 M40.3 XD loudspeaker
- Hegel V10 phonostage
- HiFiMan Susvara headphones
- JL Audio E110 subwoofer
- JL Audio Fathom F212 subwoofer
- JL Audio IWS-Series in-wall subwoofers
- JMF HQS 7001 monoblock power amplifier
- JMF PRS 1.5 linestage preamplifier
- J Sikora Initial Max turntable
- J Sikora KV12 tonearm
- Kalista DreamPlay XC CD/SACD player/streamer/DAC/digital linestage
- Kuzma Reference turntable
- Lumin S1 server
- Lumin T3 streamer/DAC
- Lyra Etna Lambda Edition moving-coil phono cartridge
- Magico A1 loudspeaker
- Magico A5 loudspeaker
- Magico M2 loudspeaker
- Magico S3 2023 loudspeaker
- Magnepan 1.7i loudspeaker
- Magnepan 20.7 loudspeaker
- Magnepan 30.7 loudspeaker
- Magnepan LRS+ loudspeaker
- MBL 126 loudspeakers
- MBL 101 X-Treme MKII loudspeakers
- MBL 6010 D preamplifier
- MBL 9008 A monoblock power amplifier
- MBL Cadenza C51 integrated amplifier
- McIntosh C53 preamplifier
- Metaxas & Sins Tourbillon open-reel tape deck
- Metronome DSC streaming DAC & digital linestage
- MSB Reference DAC
- My Sonic Lab Signature Gold moving-coil phono cartridge
- Nordost Qb8 AC distribution center
- Nordost Qx4 power conditioner
- Nordost Tyr 2 interconnects and cables
- Nordost Tyr 2 power cables
- Pilium Achilles amplifier
- Pilium Alexander preamplifier
- Pilium Elektra DAC
- PrimaLuna EVO 100 phonostage
- PS Audio BHK 600 amplifier
- Shunyata Research Alpha NR AC power cords
- Shunyata Research Altaira grounding system
- Shunyata Research Delta AC power conditioner (replaced by the Gemini series)
- Shunyata Research Everest 8000 AC power conditioner
- Shunyata Research Omega QR AC power cord
- Shunyata Research Venom power director & AC cable
- Siltech 880i interconnects
- Siltech 880L loudspeaker cables
- Soulution 711 stereo power amplifier
- Soulution 727 preamplifier
- Soulution 757 deemphasis preamplifier
- Soulution 760 DAC
- Stein Music Pi Carbon Signature record mat
- Stein Music DE3 LP demagnetizer
- Stenheim Alumine 5 SE loudspeaker
- Sutherland N1 preamplifier
- Synergistic Research Atmosphere Satellite Mini tuning device
- Synergistic Research SRX (Revised) interconnects
- Synergistic Research SRX (Revised) speaker cables
- Synergistic Research SRX (Revised) power cords
- Synergistic Research PowerCell SX AC power conditioner
- Synergistic Research Vibratron SX tuning device
- Taiko Extreme music server
- Technics SL-1210G turntable
- Theoretica Applied Physics BACCH-SP adio processor
- Tidal Contros DAC/preamplifier
- Tidal Ferios power amplifier
- TW Acustic Raven Black Knight turntable
- TW Acustic Raven 10.5 tonearm
- United Home Audio SuperDeck open-reel tape deck
- United Home Audio Ultima5 OPS-DC open-reel tape deck
- Wadax Reference DAC
- Wadax Reference Server with Reference PSU
- Wilson Audio Alexx V speakers
- Wilson Audio Chronosonic XVX loudspeaker
- Wilson Audio SubSonic subwoofers
- Vicoustic Cinema VMT absorbers
- Vicoustic Multifuser DC3
- Zesto Eros 500 Select monoblock amps

# Manufacturer Comments

## PrimaLuna EVO 100 Phonostage

On behalf of Upscale Distribution and the PrimaLuna team, I would like to thank Dick Olsher and *The Absolute Sound* for a thoughtful and exciting review of the PrimaLuna EVO 100 phonostage.

When I read Dick's review, I was so happy he was the person reviewing it. There is a lot of engineering and a lot of expensive parts required to make something both amazing and different. He's the guy technically adept enough to break it down for readers. It's the veterans like this that readers can count on.

Dick is right. It's hard to make an all-tube circuit with no step-ups. But done right, dynamics and bottom end can be unleashed in a jaw-dropping manner. I noted that in my own system, in which the reference costs about four times the price of the EVO100.

I'm truly grateful for TAS, for Dick Olsher, and for the unyielding efforts of PrimaLuna's master, Herman van den Dungen.

**Kevin Deal**
**President**
**Upscale Distribution**

## CH Precision P10 Phonostage

We're very pleased that Michael so enjoyed his time with the P10. Its performance is the result of a lot of hard work and it's nice when those efforts are appreciated. We'd like to take this opportunity to clarify two points.

Michael mentions the boards in the review P10 being replaced before he listened to it. The unit was originally shipped with pre-production boards and these were replaced with production pieces for the review, ensuring that the review unit was fully representative.

As he also points out, the P10 has the facility to offer a range of additional phono-replay EQ curves. We recognize that not everybody will have the desire or the record collection to use those curves, which is why we make them an option that can be specified at time of purchase or added later. Each set of optional cards includes all seven additional curves (you don't have to select which ones you want and pay for them individually).

**Florian Cossy**
**CH Precision**


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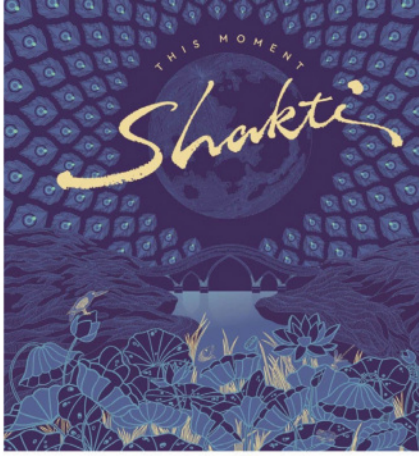
## New Album and Tour Rekindle the Flame

Bill Milkowski

**BACK IN 2017, GUITAR GOD JOHN MCLAUGHLIN** announced that due to a progressive arthritic condition in his hands, he was going to retire from touring for all time. "There's really no cure for it, really," he told me then. "You can just slow it down through cortisone injections in the hands before every tour, which is not really very pleasant. And the situation is deteriorating. Short of a miracle, I think that'll probably be it, in terms of touring. Simply because, if I take a tour and I have a 'really bad hair day' and cannot play, it's a big problem for a lot of people, especially the musicians. But the promoters and the audiences too. It's now become too big of a risk. And for me, I don't want to let people down."

That was a major blow to guitar aficionados and McLaughlin fans like myself, who had been following his remarkable six-string feats since the days of Miles Davis albums like 1969's *In a Silent Way*, 1970's *Bitches Brew*, and (perhaps most significantly) 1971's *Jack Johnson*. And if those collaborations with Miles hadn't already cemented McLaughlin's place as the reigning guitar avatar of the day, his seminal explorations with Tony Williams Lifetime (1969's *Emergency!* and 1970's *Turn It Over*) along with his own groundbreaking fusion juggernaut Mahavishnu Orchestra (1971's *The Inner Mounting Flame* and 1973's *Birds of Fire*) confirmed John's status as Grand High Exalted Mystic Ruler of the electric guitar. At least for me.

So while his 4th Dimension Band tour of 2017 ostensibly marked his last performances in the States, McLaughlin did indeed experience something of a miracle. It came via Dr. Joe Dispenza, who helped heal McLaughlin's arthritic hand through meditation and the power of a "mind-body connection" that has caused spontaneous remission in countless others. While sequestered at his home in Monaco during the pandemic McLaughlin rebounded miraculously, recording two albums—2019's *Is That So?* with Shakti mates Shankar Mahadevan on vocals and longtime partner Zakir Hussain on




tablas, and 2021's aptly titled *Liberation Time*, his response to the COVID lockdown. He then celebrated his 80th year with a triumphant 4th Dimension Band tour of Europe in 2022. And now, with the August release of *This Moment* (Abstract Logix), the first Shakti studio album in 46 years (since 1977's *Natural Elements*), McLaughlin was ready to hit the road once again, this time with the pioneering Indo-jazz super-group he formed with tabla master Zakir Hussain in 1973.

Joining the two musical partners and kindred spirits on Shakti's 50th Anniversary Tour were percussionist Selvaganesh, who joined the group in 1997 when it was rechristened Remember Shakti, Mumbai-born vocal sensation Shankar Mahadevan (a major pop star and film composer in his native country), and violinist Ganesh Rajagopalan, whose pyrotechnic and lyrical contributions pulsate throughout *This Moment*. Rajagopalan's singular solo flights are not only astounding on the new album, his tight chemistry with McLaughlin brought back memories of the group's original violinist L. Shankar.

As a tribute to their late comrade U. Srinivas (the mandolin maestro and former member of Remember Shakti, who passed away in 2014), Shakti opens *This Moment* with a tune called "Shrini's Dream" (Shrini was a nickname for Srinivas). A kind of jazz-funk idea with an Indian motif, it was also one of the more popular tunes on the group's recent tour, as I witnessed at an August performance at The Capitol Theatre in Port Chester, New York (a historic venue that McLaughlin first played in 1970 with Tony Williams Lifetime).

Their seventh outing together since McLaughlin and Hussain launched the group 50 years ago, *This Moment* and follow-up tour both capture Shakti once again stretching the boundaries of Hindustani and Carnatic music while injecting Western ideas of harmony into its successful world music formula they pioneered 50 years ago.

It was back in 1973 at Saint Thomas Church in midtown Manhattan that the original edition of Shakti made its first public concert appearance. "I can't yet digest that it's been 50 years," said Hussain before the Capitol Theatre show. "Shakti was at the forefront of the whole world music thing way back when, and now it is great that it is being welcomed back. And it's just been amazing to be able to perform together, doing two-and-a-half hour nonstop concerts. I didn't know that we had it in us to be able to do that, but here we are. And it felt like we just picked up where we left off."

Shakti stunned the adoring 1400 devotees at the Capitol Theatre show I attended on August 19. McLaughlin, looking aged but elegant as always, sat cross-legged on the carpeted dais on stage and unleashed on his Paul Reed Smith electric guitar with the same dazzling speed, endurance, and intensity that he always exhibited throughout his illustrious career. And the intricacy that the whole ensemble demonstrated throughout their volcanic set on the exacting unison lines and call-and-response statements from tune to tune was pulse-quickening.

While on the Port Chester gig they trotted out older gems like "Zakir" (from 1999's *Remember Shakti*) along with "5 in the Morning, 6 in the Afternoon," "Anna," and "Finding the Way" (from 2000's *The Believer*), the group generated the most sparks on material like "Shrini's Dream" and "Breaking the Rules" from the new album.

**"SHAKTI WAS AT THE FOREFRONT OF THE WHOLE WORLD MUSIC THING WAY BACK WHEN, AND IT IS GREAT THAT IT IS BEING WELCOMED BACK."**

Vocalist Mahadevan, a regal presence with a commanding Pavarotti-sized voice, was introduced by McLaughlin as "the fifth member of Shakti." He quickly captivated the Capitol Theatre audience with the traditional South Indian kriti, "Giriraj Sudha," a magnificent showcase which appears on the new album. This calming number eventually developed into a whirlwind Carnatic jam midway through that was brimming with impossibly tight unisons and exhilarating call-and-response lines between violin and voice, all spurred on by the churning pulse of Hussain's remarkable tabla work locked in an indelible hookup with Selvaganesh's kanjira (South Indian frame drum).

A beguiling "Sakhi," a glorious number from McLaughlin's orchestral pandemic album, *Is That So?* that showcased Mahadevan's transcendent vocal powers, cast a spell on the audience. Their gentle rendering of the plaintive melody "Lotus Feet" (from Shakti's 1976 self-titled debut album) was met with knowing applause by the Capitol Theatre crowd. They closed their set with a rousing rendition of "La Danse du Bonheur" (from 1977's *Handful of Beauty*) that included an explosive display of konnakol (the art of performing percussion syllables vocally in South Indian Carnatic music, or a kind of Indian scat singing, if you will) by the incomparable battery of Hussain and Selvaganesh. And they encored with the hauntingly beautiful "Bridge of Sighs" (a tune from 1977's *Natural Elements*), reminiscent in tone of McLaughlin's classic ballad "Follow Your Heart."

Between the new album and Shakti's triumphant 50th Anniversary Tour, it is clear that the once and future guitar hero, at age 81, is still very much on top of his game. tas

# Doing That Junkyard Thing

## The Mutant Sounds Of a Wreck Collector

Greg Cahill

**In his 1984 review of Tom Waits' *Swordfishtrombones*** album, music critic Jon Pareles wrote in *GQ* magazine that the Grammy-winning singer-songwriter's radical shift away from the piano-based jazz-folk ballads of his 1973's debut *Closing Time* and 1980's *Heart Attack And Vine* marked a major creative breakthrough. "He's found music as evocative as his words," Pareles opined. "Waits' grumble of a voice now bounces off a peculiar assortment of horns and percussion and organ and keyboards, as if he'd led a Salvation Army band into a broken-down Hong Kong disco. It's as if he's shifted from monologues to screenplays."

How did Waits explain his new musical direction?

"I tried to listen to the noise in my head and invent some junkyard orchestral deviation," he said in 1983, "a mutant apparatus to drive this noise into a wreck collection."

Fans and critics alike saw that creative transformation—a fruitful partnership with Waits' wife, his songwriting and production partner Kathleen Brennan—as the work of a musical genius. Forty years later, Island/UMe has rolled out five remastered titles from that strange but fertile era: *Swordfishtrombones* (1983), *Rain Dogs* (1985), *Franks Wild Years* (1987), *Bone Machine* (1992), and *The Black Rider* (1993). The recordings are available on CD and streaming services, as well as individual 180-gram black vinyl and limited-edition color variants: *Swordfishtrombones* has been pressed on canary, *Rain Dogs* on opaque sky blue, *Franks Wild Years* on opaque gold, *Bone Machine* on translucent milky vinyl, and *The Black Rider* on opaque apple. Chris Bellman at Bernie Grundman Mastering has remastered all of the albums from various sources in league with Waits' longtime audio engineer Karl Derfler. *Swordfishtrombones* was sourced from the original EQ'd ½-inch production mastertapes while *Rain Dogs*, *Franks Wild Years*, *Bone Machine*, and *The Black Rider* were sourced from the original ½-inch flat mastertapes. Bellman then remastered the audio in a 24-bit/192 kHz digital format. Alex Abrash at AA Mastering cut the lacquers. The new vinyl editions sport custom-designed labels depicting an image of Waits from the year of the recording in addition to artwork and packaging replicating the original LPs, which have been out of print since their initial release. *The Black Rider* and *Bone Machine* were never released on vinyl outside of Europe.

While the five albums share exotic tropes—beat-era spoken-word poetry, theatrical arrangements, and dense industrial, mechanical, and malleted gamelan sounds reminiscent of dancing skeletons—each occupies a unique space within Waits' dark, Dadaist world. The songs often exhibit the absurdist influence of Captain Beefheart, but also translate well as straight-ahead blues (check out John Hammond's excellent 2001 Waits cover album *Wicked Grin*). Here's a summary of the recordings:

***Swordfishtrombones.*** This album was rejected by Elektra-Asylum and snatched up by Island Records founder Chris Blackwell. The songs range from the circus music of "Dave the Butcher" to the gritty blues of "16 Shells from a 30-Ought Six" to the boozy "Town with No Cheer." The first installment of a *de facto* trilogy that includes *Rain Dogs* and *Franks Wild Years*.

***Rain Dogs.*** The gamelan elements (wooden marimba and gongs) make a bow on "Clap Hands." *Rain Dogs* introduced experimental-rock and jazz guitarist Marc Ribot to Waits' roster of session players—Ribot became a longtime collaborator.

***Franks Wild Years.*** Dark dreamscapes that sound like a New Orleans funeral band marching through an insane asylum rub shoulders with "Innocent When You Dream," one of the most poignant songs in the rock canon.

***Bone Machine.*** Those dancing skeletons rattle on the opening track, the chilling elegy "The Earth Died Screaming." This mortality-themed recording earned a Grammy Award for Best Alternative Music Album. Les Claypool, Primus drummer Brain, Keith Richards, and David Hidalgo of Los Lobos make guest appearances.

***The Black Rider.*** This score to the avant-garde musical fable *The Black Rider: The Casting of the Magic Bullet* is a cautionary tale about addiction and a collaboration between Waits, playwright Robert Wilson, and beat poet William S. Burroughs. The strident "Oily Night" reveals *The Black Rider* is a challenging listen, but there are some gems as Waits employs the high-modernist cabaret style of German composer Kurt Weill, later refined on Waits' 2002 theatrical score *Blood Money*.

While Waits deserves the lion's share of the credit for these five albums, it is Brennan's creative influence that seasons these tracks. "Kathleen was the first person who convinced me that you can take James White and the Blacks, and Elmer Bernstein and Leadbelly—folks that could never be on the bill together—and that they could be on the bill together in *you*," Waits once said in an interview. "You take your dad's army uniform and your mom's Easter hat and your brother's motorcycle and your sister's purse and stitch them all together and try to make something meaningful out of it."

Welcome to Tom Waits' wild side. tas

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# When Samba Calls Your Name

## Bebel Gilberto's Heartfelt Tribute to Her Father

Jeff Wilson

**Imagine being the child of João Gil**berto and deciding to become a musician. When the father of bossa nova also happens to be your biological father, well, that could be a bit daunting, as potentially throughout your career you could remain in the shadow of someone who by all accounts was a musical titan.

Bebel Gilberto was never in the shadow of anyone, however. Yes, at a young age she performed on stage with both her father João and her mother, Miucha, herself a popular bossa nova artist. But with the release of the first full-length album by Bebel, 2000's *Tanto Tiempo*, it became clear that she had carved out her own identity, attracting a new generation of listeners with a sound that combined the warmth of traditional bossa nova and samba music with a more layered sound that reflected the pop world at that time. The album resonated with a wide audience, selling more than a million copies. What helped Bebel put a personal stamp on Brazilian music was the fact that she co-wrote some of the music on *Tanto Tiempo*, a practice that would continue as her career developed.

Although Bebel helped Brazilian music broaden its horizons, collaborating with such risk-takers as Arto Lindsay, Bill Frisell, and David Byrne, there was never any question that the music her father recorded remained an influence and inspiration for her own music. That said, she never addressed the legacy of her father as directly as she has on her two most recent albums. *Agora* (2020) was in part a cathartic reaction to the loss of her father, mother, and a close friend. And her new PIAS release, *João*, consists entirely of songs João Gilberto recorded at some point during his nearly 70-year career (no, that's not a typo).

Unlike *Agora*, with its layered sound and use of vocal effects, the accompaniment on *João* is typically spare and minimal while Bebel's vocals usually have a realistic "in the room" presence. In fact, the mostly acoustic recording resembles some of João Gilberto's group projects (many of his LPs were solo albums) aside from some electronics that are so subtle you barely notice them when they slip into the background. Here Guilherme Monteiro's nylon-string guitar and Bebel's vocals remain in the foreground while light touches flit in and out of the background. Bossa nova fans who've internalized the types of arrangements that became popular during bossa nova's heyday—the introduction of winds midway through a song, for example, or sprinkles of acoustic piano a la Antonio Carlos Jobim—will find familiar touchstones in some of the arrangements.

One wonders if Bebel could have found a more charming song to open *João*. Written in 1948, "Adeus América" is a witty number that eschews such trifles as boogie-woogie and the foxtrot in favor of samba music. João Gilberto sang it, and so did Astrud Gilberto, and the message still resonates in 2023. A ditty about a duck who has a soft spot for samba music, "O Pato" is also light-hearted.

The two most well-known cuts on *João*—"Desafinado" and "Ela É Carioca"—were penned by Antonio Carlos Jobim. Elsewhere much of the album explores deep cuts from João Gilberto's discography, including four tracks from his eponymous 1973 "white album" with a cover that makes it look like a cheap budget reissue. Don't be fooled, though, if you're lucky enough to run across this LP in a used bin—snag it, as it's a superb record. Tracks originally on *João* include Gilberto Gil's "Eu Vim da Bahia" plus two songs with wordless vocals (actually, "Undiu" has one word). In theory, the wordless/one-word songs may sound like trifles, but they allow Bebel and producer Thomas Bartlett to create a rich aural tapestry, a talent she's perfected over the years.

The two most powerful songs, "Eclipse" and "Você e Eu," appear at the end of the record. One assumes every song on this record has personal associations for Bebel Gilberto, but lyrically these songs seem particularly appropriate given her relationship with her father. (Kudos to PIAS for including English translations for the lyrics, which are sung in Portuguese.) Clearly Bebel's heart was in this project. She could have delivered a tribute album earlier in her career, focused on her father's most well-known songs, and cashed in on his fame, but instead she waited for the right time to address her father's legacy. If you love bossa nova and samba music, this album will resonate with you, and if the legacy of João Gilberto means anything to you, it will resonate even more. tas

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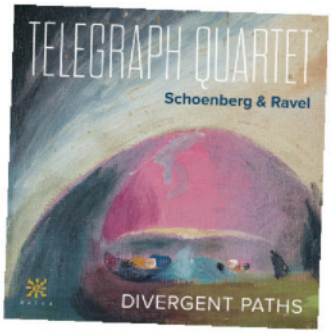
# String Quartets from a Golden Age

## The Divergent Paths of Schoenberg and Ravel

Ted Libbey




**From our vantage point, well into the 21st century,** it's possible to look back with fondness on the beginning of the 20th century and see it for what it was—a golden age. The wealth of thought in musical circles—make that in *all* artistic circles—was absolutely dizzying. Take the two works showcased in this new release from Azica featuring the San Francisco-based Telegraph Quartet. Called *Divergent Paths*, it couples—probably for the first time on disc—Maurice Ravel's String Quartet in F and Arnold Schoenberg's String Quartet No. 1 in D minor, Op. 7, finished in 1903 and 1905 respectively.

Between these two, Debussy wrote *La Mer*, Mahler his Symphony No. 6, Strauss *Salome*, and Puccini *Madama Butterfly*. Cezanne capped his career with a series of paintings of Mont Sainte-Victoire, 11 in oils, while Picasso entered his "Rose" Period (1904–06), just prior to painting the proto-Cubist masterpiece *Les Demoiselles d'Avignon* in 1907. Jack London wrote *Call of the Wild* and *White Fang*, Joseph Conrad wrote *Nostromo*, the Wright brothers achieved the first powered flight, and Henry Ford founded the Ford Motor Company. Walter Johnson began his pitching career with the Washington Senators and, lest we forget, Theodore Roosevelt was President of the United States—these days that's saying quite a lot.

Ravel would never write another string quartet. Schoenberg would write three more. Yet Ravel (1875–1937), the younger of the two by a year, was already Ravel—he would employ more exotic and antiquarian elements in subsequent works, but his style and technique were by this time fully established, as can be heard in the music. By contrast, Schoenberg (1874–1951) was in an early phase, still searching for his identity—effectively synthesizing elements of Wagner and Brahms, looking for new expressive possibilities, but a long way from the "method of composing with twelve tones" he would put into practice only with the Piano Pieces Op. 23 of 1923.

In this, their debut outing for Azica—and the first installment in a series of recordings to be titled *20th Century Vantage Points*—the Telegraph players deliver thoroughly convincing accounts of both works. The Ravel receives what can only be described as a beautiful performance: tight, precise, in tune, and wonderfully idiomatic. On listening, one immediately notices the group's wide dynamic range and stylish use of portamento. In addition, the unusual seating—from left to right, first violin, viola, cello, second violin—combined with Azica's superb engineering helps to clarify the score's inner textures (for example, the fascinating G sharp-A sharp pizzicato trade-offs between first and second violin in the quartet's second movement). So well do the foursome understand this music that, by reading's end, they've made the listener newly aware of its direct connection to the sultry world of *Rapsodie espagnole* (1907), Ravel's first major symphonic work.

Similar discoveries abound in the account of the Schoenberg, a vast and brilliant work whose epic proportions make perfect sense here. In other hands the score's Expressionist (i.e., chromatic) leanings and dense, knotty counterpoint can produce heavy weather. But the Telegraph players sail through it, conveying both the work's spirituality—yes, there's a reason Mahler liked it—and its structural sense quite effectively. Also, the group's rich sonority and technical accomplishment do justice to a composer who, as a capable violinist and self-taught cellist, understood the quartet medium from the inside.

The early 20th-century "golden age" continued after the D minor quartet was premiered in 1907. G.K. Chesterton would finish *The Man Who Was Thursday* in 1908, the same year E.M. Forster would pen *A Room with a View*. And in 1909, Proust began what would become his *Recherche*. In the second volume of that work, *In the Shadow of Young Girls in Flower*, there's a passage about the late quartets of Beethoven describing how works of genius create their own posterity "by fertilizing the few minds" capable of understanding them.

Which brings us back to Schoenberg, whose time is running out. With the exception of a couple of early works—the String Sextet *Verklärte Nacht* and the quasi-oratorio *Gurre-Lieder*—Schoenberg's music remains on the periphery of the repertory, recognized but unloved, trotted out from time to time (like the Violin Concerto) by a few determined performers. The *Five Orchestral Pieces*, Op. 16 and *Variations for Orchestra*, Op. 31, both formidable, are neglected. *Pierrot Lunaire* is avoided, the songs and piano music virtually untouched. Of Schoenberg's 12-tone pieces, not one has found an audience in the 100 years since he first introduced the technique. Why?

The distinguished American composer George Rochberg once told me how he would begin his doctoral seminar in composition by asking: "You all know the quartets of Schoenberg, right?" There would be confident nods. Then he would say: "OK, sing or play me the beginning of one of them." Nobody could. The problem was, and still is, that it's nearly impossible for professional musicians, let alone audiences, to "internalize" Schoenberg's music—it cannot be held in the memory the way an entire work of Ravel (or of Debussy, Bartók, or Shostakovich) can be.

At least the quartets have now been given a new voice, by a group with something to say and vast potential. Perhaps, just perhaps, fertilization will occur.

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# A New Milestone for BMOP

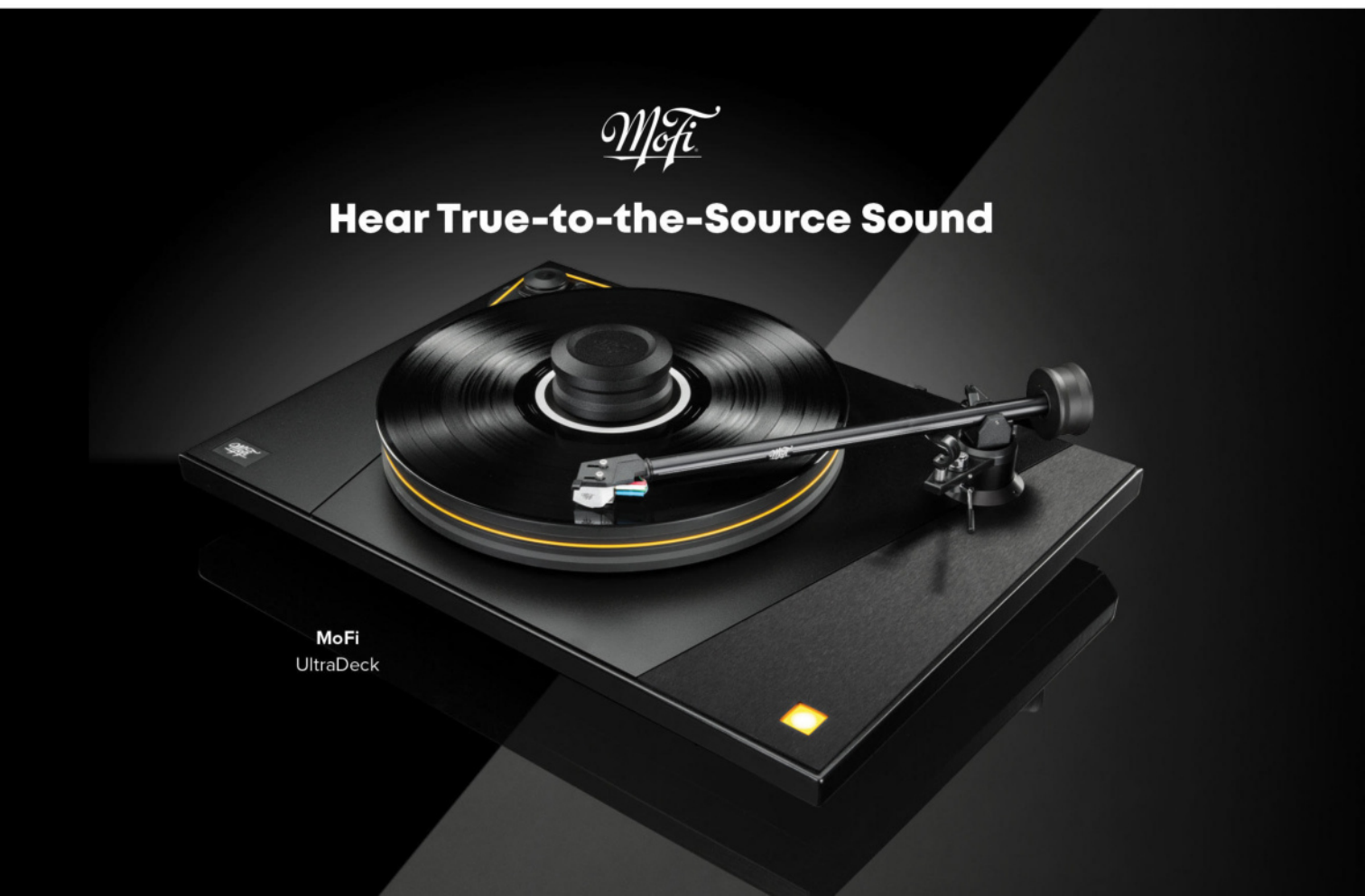
## Expanding the Repertoire One Release at a Time

Peter Burwasser

**The average American orchestra concert attendee** experiences new music in a rather formulaic manner, according to conductor Gil Rose. "Symphony orchestra audiences almost never get a chance to hear major new works that would normally be heard on the second half of the program. Instead they get the snappy new music opener, before the three billionth performance of the Beethoven Seventh Symphony." Rose hastens to add that the Beethoven work is very great music, but he laments the fact that the old, standard repertoire pushes out not only the music of living composers, but forgotten masterpieces written within the last century. "Audiences have become predisposed to think this way about modern orchestral music."

More than 25 years ago, Rose embarked on a mission to remedy this situation by creating a performance ensemble and recording venture under the name of Boston Modern Orchestra Project. Remarkably, this landmark anniversary of BMOP, as it is commonly known, coincides with the 100th release on the recording label, although, as Rose points out, "The trains did not exactly leave the station at the same time." The catalog is an extraordinary achievement, a great monument of American music, consistently issued in fine, committed performances, fine recordings, and handsomely produced packages. As Rose sees it, BMOP has served two main purposes: supporting the work of living American composers, and resurrecting the work of fine, if oddly neglected composers of the past. Or, as Rose puts it, "You can't know where you are going if you don't know where you came from."

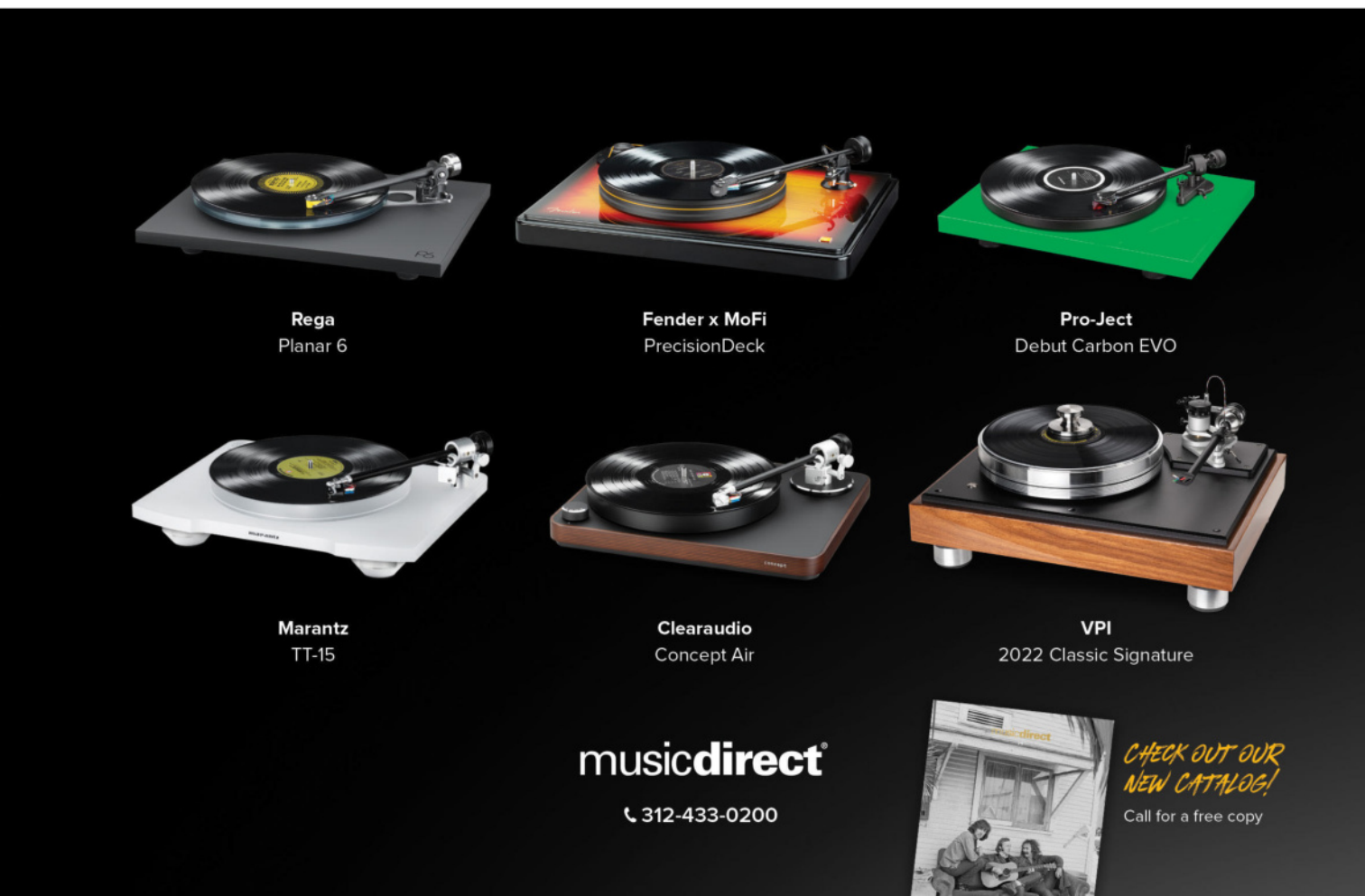
Contemporary composers, with very few exceptions, must struggle to find outlets for their music, both in live performance and on record, and BMOP provides an es-



pecially valuable resource for this purpose. The BMOP catalogue includes a range of brilliant music by such American masters as John Harbison, Steve Mackey, Jeremy Gill, Charles Wuorinen, Stephen Hartke, Robert Carl, and many others. A recent release of Anthony Davis' *X: The Life and Times of Malcolm X* has been a major factor in the revival of this stunning modern opera, to cite a particularly notable example of the impact and importance of BMOP's work.

Despite this important advocacy of new music, Rose admits that his favorite professional work is the rediscovery of significant American music that may have been acclaimed at the time of creation, but, for any number of reasons, failed to find a foothold in the repertoire. Rose waxes enthusiastically about these ventures, gushing about "early Elliot Carter ballets that sound almost like Copland, great pieces by Leon Kirchner and David Del Tredici, Carlos Surinach—our recordings make the music part of the public discourse, and even a last chance for survival." Rose has a bucket list of such projects, including a revival of American operas that were featured on the highly popular NBC Opera Theatre, which appeared on television from 1949 to 1964 and included premieres of stage works by Gian-Carlo Menotti, Norman Dello Joio, Leonard Bernstein, and other Americans, in addition to the standard repertoire. There are whole schools of composers that Rose feels have been unfairly forgotten, including many mid-20th-century American composers, such as Bernard Rogers, "who taught a whole generation of composers at Eastman. Then there is the Second Boston School, with figures such as Lukas Foss, Irving Fine, and Harold Shapero, who were all disciples of Stravinsky."

Perhaps appropriately or at least poetically just, the 100th BMOP recording will fall into the revivalist camp. It will be a collection of the complete ballets of John Alden Carpenter, a Chicago based composer who, like Charles Ives, made his living as a businessman while writing wonderful music on the side. Just as Ives marked himself as an American composer, finding inspiration in the everyday life of his native New England, Carpenter's work reflected the cultural American milieu of his time, with works such as *Krazy Kat*, *A Jazz Pantomime*, and *Skyscrapers*, all featured on the new BMOP release. Considering Carpenter's populist profile, and the frequently accessible nature of BMOP's output in general, it is possible to imagine that Rose tends to more conservative musical tastes, but he rejects such an assertion. "A lot of my colleagues tend to fall into categories, like atonal music or accessible American concert music. I try to be more catholic, taking in the whole kaleidoscope out there. My criterion is simply, is it good?" TAS



# Bear Proof

## Bay Area Octet Eludes Simple Categorization

Derk Richardson

PHOTO BY ALEX CHALOFF

**To call Todd Sickafoose's latest album, *Bear Proof*,** a jazz recording would be as limiting as labeling Sickafoose a jazz bassist. Sure, it is "jazz" in ways similar to Bill Frisell's *Have a Little Faith* and Mary Halvorson's *Amaryllis*. But, like those guitarists' work, Sickafoose's original music owes considerably to folk, rock, and modern chamber music, plus the spirit of film scores and even cartoon music. All that is in keeping with the San Francisco-bred musician's eclectic background as a student of Mel Powell (whom Sickafoose calls a "Yoda" of composition), and bassists Edgar Meyer and Charlie Haden, and a collaborator with a varied cadre that includes Ani DiFranco, Anais Mitchell, Andrew Bird, bluegrass-crossover artists Laurie Lewis and Darol Anger, the jazz group Kneebody, drummer Scott Amendola, trumpeter Steven Bernstein, and the indescribable John Zorn.

"I don't know if it's a California thing, that thing of living between the genres or just throwing them out," the 49-year-old Sickafoose said in a video conversation from Portland, Oregon, where he has lived with his wife and children since 2015, after calling Brooklyn home for a decade. "These musicians," he continued, referring to the seven other players on *Bear Proof*, "do it so well, you get the sense that in every moment they're searching for something that could go on forever. I love that infinity feeling." With Sickafoose on acoustic bass, the *Bear Proof* octet comprises violinist Jenny Scheinman, guitarist Adam Levy, pianist Erik Deutsch, clarinetist Ben Goldberg, cornetist Kirk Knuffke, accordionist Rob Reich, and drummer Allison Miller. Sickafoose took advantage of the unusual instrumentation to write for duos and trios in a wide variety of novel alignments with a minimum of solos.

This Bay Area-connected cast of musical personalities, familiar with one another but never having played together in this grouping, rehearsed *Bear Proof* and performed it live once on the radio before going into Berkeley's Fantasy Studios in 2014. They recorded the nine tracks in one continuous 62-minute take. "I've played for long periods of time in a studio, just improvising," Sickafoose said, "but I've never done anything like what we did. Even though it was new, it felt really well explored by the time we recorded it. There are spontaneous elements, but so much of it is composed that it's very repeatable from performance to performance."

Sickafoose had released only three albums prior to *Bear Proof*: *Dogs Outside* (2000), *Blood Orange* (2005), and *Tiny Resistors* (2008). His move to Portland and his responsibilities to his young family delayed the release of *Bear Proof* to 2023. The COVID pandemic allowed Sickafoose to take a break from the recording sessions and sometimes lengthy tours that have governed his musical life for the past two decades.

Things really got busy in 2005. After he and singer-songwriter Noe Venable (with whom he has recorded five albums) opened for Ani DiFranco on two six-week tours, DiFranco recommended Sickafoose to producer Joe Henry to play bass on her *Knuckle Down* album. "Rehearsing songs for the record, we fell in love with playing with each other," he said of his bond with DiFranco. He has toured with DiFranco and contributed to her albums as a multi-instrumentalist ever since. On the *Knuckle Down* tour, Sickafoose met Anais Mitchell, who opened the shows. Mitchell asked him to produce the studio album of her musical *Hadestown*, which led to Sickafoose playing bass in the stage show's one-nighters around the Northeast and serving as arranger, producer, engineer, and mixer on subsequent recordings of the eventual Tony- and Grammy-winning musical.

Circling back to *Bear Proof*, Sickafoose touched upon the inspirations for the compositions. He and longtime collaborator Jenny Scheinman (he's played in her groups and they're members of Allison Miller's Boom Tic Boom) were talking about California's history of gold rushes, from the original 49ers to Hollywood to pot to computer technology. During the tech booms, he said, "It also felt like everyone was getting displaced and there was this great Bay Area exodus. That's where this idea of boom and bust came in. I felt like I was able to write about the emotions of these things in broad ways, and these musicians help with that because they play with such expressiveness and wild amounts of color."

Each of *Bear Proof*'s nine tracks, with such titles as "The Gold Gate," "Flush," "Boom Bust Startup Ruin," "Prospects," and "Reverse Fortune" has its own character but folds seamlessly into the next, yielding a one-sitting listening experience that confirms Sickafoose's place among today's top post-jazz composers and arrangers. tas

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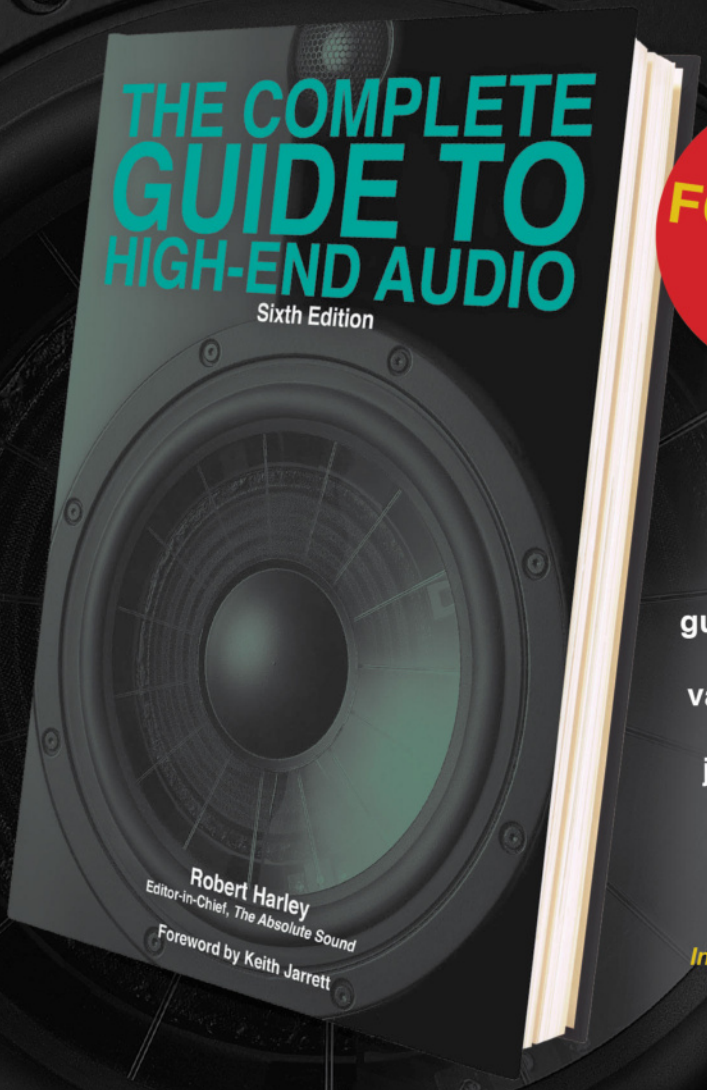


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MUSIC ●●●●◐ SONICS ●●●●◐

**Blind Boys of Alabama: *Echoes of the South.*** Single Lock Records.

From a live housewrecker such as the scalding album opening plea for divine guidance, "Send It on Down," to the deep southern soul groove and earnest testifying closing the album on a thoughtful note in Stevie Wonder's "Heaven Help Us All," the Blind Boys of Alabama are fully and powerfully present in sending messages of hope, resilience, faith, and love on *Echoes of the South*, the group's first new album in six years. Titled after the Birmingham, AL, radio show on which the group (then known as the Happy Land Jubilee Singers) launched its legendary career some 80 years ago, the current lineup, devastated by the loss of two veteran members but revitalized by two new powerhouse vocalists, continues its seamless fusion of disparate styles into a southern gospel whole that moves the body and uplifts the soul. With a small combo providing tasty, understated support, the quintet, sharing lead vocal duties, gracefully navigates a measured arrangement of Pops Staples' conciliatory message for a divisive era, "Friendship," as seamlessly as it gets lowdown and funky on the percolating salvation cry, "Paul's Prayer." If a populace in upheaval can't be moved by these echoes from the south, then, indeed, Heaven help us all. **David McGee**

**Further Listening:** Fairfield Four: *Revival*; The Five Blind Boys of Mississippi: *The Millennium Collection*

MUSIC ●●●●○ SONICS ●●●●○

**Tom Hambridge: *Blue Ja Vu.*** Quarto Valley.

On the few occasions when Tom Hambridge isn't producing Grammy-winning albums for the likes of Buddy Guy and Keb' Mo' he'll retreat to the studio to make his own statement. On his new long player he's bringing powerhouse drums and percussion and soulful blues vocals to bear on an impressive batch of tunes he's produced, written, and played on for and with others, some of whom join the festivities. Inscrutably titled, *Blu Ja Vu* hits the ground running with none other than Buddy Guy blazing away on guitar and adding earnest vocals to the heated philosophical treatise on matters of the heart, "Ain't It Just Like Love." Intensifying the attack, Joe Bonamassa underscores the lust for a '65 T-Bird and the girl that goes with it on "Automatic" and also adds to the unrepentant howl that is the thundering "That's My Home." Christone "Kingfish" Ingram contributes taut guitar and muscular vocals to Hambridge's life-lesson titled "Blues Don't Care" ("The blues gonna get you some way, somehow"), and the legendary James Cotton's shimmering harp helps propel the instrumental "Brother John Boogie" into the ether. Hambridge isn't in need of much help from his friends, but the sum of all these parts is special indeed. **DM**

**Further Listening:** Buddy Guy: *The Blues Don't Lie*; Christone "Kingfish" Ingram: *662*; Coco Montoya: *Coming in Hot*

MUSIC ●●●●○ SONICS ●●●●○

**Rhiannon Giddens: *You're the One.*** Nonesuch.

Cut loose from the pandemic lockdown, which shaped 2021's introspective collection of folk covers *They're Calling Me Home*, singer, songwriter, and multi-instrumentalist Rhiannon Giddens enlisted Jack Splash (Kendrick Lamar, John Legend) to produce her first album of original songs. The result is often joyful, sometimes poppy ("Too Little, Too Late, Too Bad"), mostly drum-driven folk-rock that teams Giddens with Jason Isbell ("Yet to Be") while showcasing her gospel-inflected vocals and five-string fretless banjo. Americana fans who know Giddens from her days with the rootsy Carolina Chocolate Drops might be surprised by her pop turn ("Another Wasted Life," "Hen in the Foxhouse"). But the old-timey blues of "You Put the Sugar in My Bowl" and Dirk Powell's ubiquitous fiddle and accordion ("Louisiana Man," Way Over Yonder," "If You Don't Know How Sweet It Is") harken to her trad roots (which get a nod on the album closer, the spry fiddle tune "Good Ol' Cider"), while the string arrangement of the torchy "Who Are You Dreaming Of" points to a new direction. These stylistic offerings lack continuity, but make for a musical gumbo that shows this gifted North Carolina native can deftly straddle folk, blues, country, jazz and pop. Don't fence her in. **Greg Cahill**

**Further Listening:** Rhiannon Giddens: *Freedom Highway*; Carolina Chocolate Drops: *Dona Got a Ramblin' Mind*

MUSIC ●●●●● SONICS ●●●●●

**Nanci Griffith: *Working in Corners.*** Craft Recordings (4 LPs).

A record label A&R man famously once told Nanci Griffith she had a painful voice with no commercial appeal. That short-sighted A&R guy came to eat his words as Griffith, who died in 2021 at age 68, amassed a legion of country and folk fans, made multiple appearances on PBS-TV's *Austin City Limits*, won a 1994 Grammy Award (*Other Voices, Other Rooms*), and heard her songs turned into hits by Kathy Mattea ("Love at the Five and Dime") and Suzy Bogguss ("Outbound Plane"), among others. This remastered four-LP set gathers her first four albums: the 1978 debut *There's a Light Beyond These Woods*; 1982's *Poet in My Window*; 1984's *Once in a Very Blue Moon*; and 1986's Grammy-nominated *The Last of the True Believers*, featuring "Love at the Five and Dime" and "Goin' Gone." Veteran mixing engineer Jeff Powell cut the lacquers. That latter title sports a stellar roster of guests, including Lyle Lovett, Tom Russell, Robert Earl Keen, Bela Fleck, Mark O'Connor, and Pat Alger. The box set includes rare photos and liner notes by co-producer Jim Rooney and music writer Holly Gleason. It beckons longtime fans and warmly introduces these poignant, long out-of-print country-folk albums to a new generation. **GC**

**Further Listening:** Nanci Griffith: *Other Voices, Other Rooms*; Various Artists: *More Than a Whisper: Celebrating the Music of Nanci Griffith*

MUSIC ●●●●○ SONICS ●●●●○

**The Pretenders: *Relentless.*** Parlophone.

The cover image of *Relentless* and the Pretenders'12th record—a bruised boy wearing an eyepatch and oversize boxing gloves—epitomizes Chrissie Hynde's feisty rock 'n' roll spirit. From her early days leading the Pretenders with James Honeyman-Scott on guitar, Hynde has always held a keen eye for guitar players who complement her rhythmic, punk guitar sound, and here James Walbourne, lead guitarist and co-writer with the Pretenders since 2008, provides the requisite lyrical sting and bite. *Relentless* opens with "Losing My Sense of Taste," a rocking, defiant look back at the COVID years and the damage wrought. Hynde's startling opening lines, "I must be going through a metamorphosis/A senile dementia or some kind of psychosis," express our cumulative fears as Walbourne's barbwire guitar spears through the claustrophobic mix. But the balance of this record is anchored by ballads, like the tender, fingerpicked "Look Away," and the enigmatic "The Copa." This melancholy streak of songs tempers the overall record with a slightly muted feel. In a graceful finale, "I Think About You Daily," Jonny Greenwood of Radiohead arranges a string accompaniment that imbues a lovely glow to Hynde's delicate piano ode; her strong, clear voice has rarely sounded better than on this mournful, breakup reminder. **Greg Gaston**

**Further Listening:** Wednesday: *Rat Saw God*; Wanda Jackson: *Encore*

MUSIC ●●●●○ SONICS ●●●●○

**Brian May & Friends: *Star Fleet Project* (LP).** Duck/Universal.

Talk about hot licks. Queen axeslinger Brian May teams up with Eddie Van Halen (insert clichés about rock-guitar heroes scaling Mt. Olympus) on this remixed 40th anniversary edition of *Star Fleet Project*, conceived by May, the knighted rocker and distinguished astrophysicist. Recorded in 1983 during a break from Queen, this album—the third reissue in May's Gold Series—has been half-speed remastered by Miles Showell at Abbey Road Studios. It sounds great. And what a supergroup! May and Van Halen—backed by keyboardist Fred Mandel (Elton John, Queen), bassist Phil Chen (Jeff Beck Band) and drummer Alan Gratzer (REO Speedwagon)—trade solos on three sprawling tracks of rock-guitar bliss. The music ranges from the 80s-era Yes soundalike title track to the blistering hard rock of "Let Me Out" to the 13-minute improvisational jam "Bluesbreaker (Dedicated to E.C)." May also has compiled an expanded 23-track CD edition brimming with previously unreleased material, as well as a deluxe box comprised of two CDs, a 12-inch vinyl album, and a 7-inch vinyl single. A translucent red vinyl version of the LP also is available. Serious rock hounds should opt for the deluxe box, since the single LP, as sublime as it is, will leave you wanting more. **GC**

**Further Listening:** Brian May: *Back to the Light*; *Another World*

MUSIC ●●●●○ SONICS ●●●●○

**Jonathan Butler: *Ubuntu.*** Mack Avenue/ Artistry Music.

In Zulu philosophy, the word Ubuntu means showing humanity to your brother. Around this idea Jonathan Butler has conceived a powerful collection of tunes speaking to his South African experience—now 61, he began performing as a seven-year-old wunderkind in Cape Town—and to the Zulu ideal alike. With Keb' Mo' on "When Love Comes In," his plaintive tenor and Keb's gritty baritone, with sumptuous choral group backing, sing of a world where "love will lead the way" in a tune that is both folk and gospel rooted in its sentiments and rhythms. A quiet ballad, "Our Voices Matter," finds Butler's gently picked acoustic guitar and close-miked vocal underscoring a message urging collective dignity born of spiritual introspection. Amid the burbling percussion and triumphant horns of "Rainbow Nation," he celebrates those who join hands in solidarity as "all of us affirmation, fountains of fire, holy survivors." Old friend Stevie Wonder shows up on chromatic harp on Butler's baroque cover of the second half of Stevie's two-part 1972 lament for lost love, "Superwoman (Where Were You When I Needed You)," a lovely, haunting track not necessarily in keeping with *Ubuntu*'s animating conceit but no less compelling on an album that is compelling in the extreme. **DM**

**Further Listening:** Paul Simon: *Graceland;* Ladysmith Black Mambazo: *Long Walk to Freedom*

MUSIC ●●●◐○ SONICS ●●●◐○

**The Hives: *The Death of Randy Fitzsimmons.*** Disque Hives.

The Hives have always known exactly who they are, and on *The Death of Randy Fitzsimmons*, the riff-heavy garage rockers prove there is still more to be mined from the niche they've carved. Their first album since 2012 is all gas no brakes, the 12 songs squeezing every ounce out of each idea and exploding with energy and attitude. Like the Hives' previous work, the music isn't anything new per se (both in their discography and rock music in general), but the predictability in form doesn't hamper the fun and actually helps to showcase the broad and kaleidoscopic spectrum of guitar tones which support each song's unique flavor. A spooky Halloween vibe permeates the album, and mentions of death and demons (but nothing *too* serious) wind through standout tracks like "Bogus Operandi," "Rigor Mortis Radio," and "Crash into the Weekend." The stadium rock-ish "Countdown to Shutdown" falls a bit flat, however, and the only slightly slower tune, "What Did I Ever Do to You," is a nice change of pace but sounds like an Arctic Monkeys-*BoJack Horseman* theme song mashup. Overall, *The Death of Randy Fitzsimmons* is an incredibly solid rock 'n' roll record that further proves the Hives truly deserve their (black and white) flowers. **Jerika Hayes**

**Further Listening:** The Strokes: *The New Abnormal;* PUP: *The Unraveling Of PUPTheBand*

MUSIC ●●●●◐ SONICS ●●●●◐

**The London Experimental Ensemble: *Child Ballads: The Final Six.*** Don Giovanni.

Across two LPs, centuries-old stories of obsessive and thwarted love, familial conflict, and royal intrigue meet postmodern music improvised by a ten-member ensemble playing guitars (electric, lap steel, Dobro), electronics, piano, saxophones, brass, and cello. The lyrics are interpreted by five different singers, including Richard Thompson, Wesley Stace (aka John Wesley Harding), and dream-folk diva Marissa Nadler. Of the 305 English, Scottish, and American ballads collected and anthologized by Francis James Child in the late 1800s, the "final six" had never been put to music. Professor of English Bertrand Harris Bronson did most of the heavy lifting on the others in the 1960s, and many were recorded by renowned folk artists—Burl Ives, Joan Baez, Fairport Convention, and Pentangle among them. Here, such songs as "The Queen of Scotland," "Young Ronald," and "The Outlaw Murray"—what Stace calls "bastards of uncertain origin, waiting to be sung"—are given splendid voice and set afloat on rolling oceans aboard creaking wooden schooners, surrounded by swirling aural mists and ghostly foghorns. Steeped in AMM percussionist Eddie Prévost's free improvisation workshops in London, the ensemble conflates 500 years of history to make one of the strangest, most unsettling yet absorbing "folk music" recordings you'll ever hear. **Derk Richardson**

**Further Listening:** Richard Thompson: *Still*

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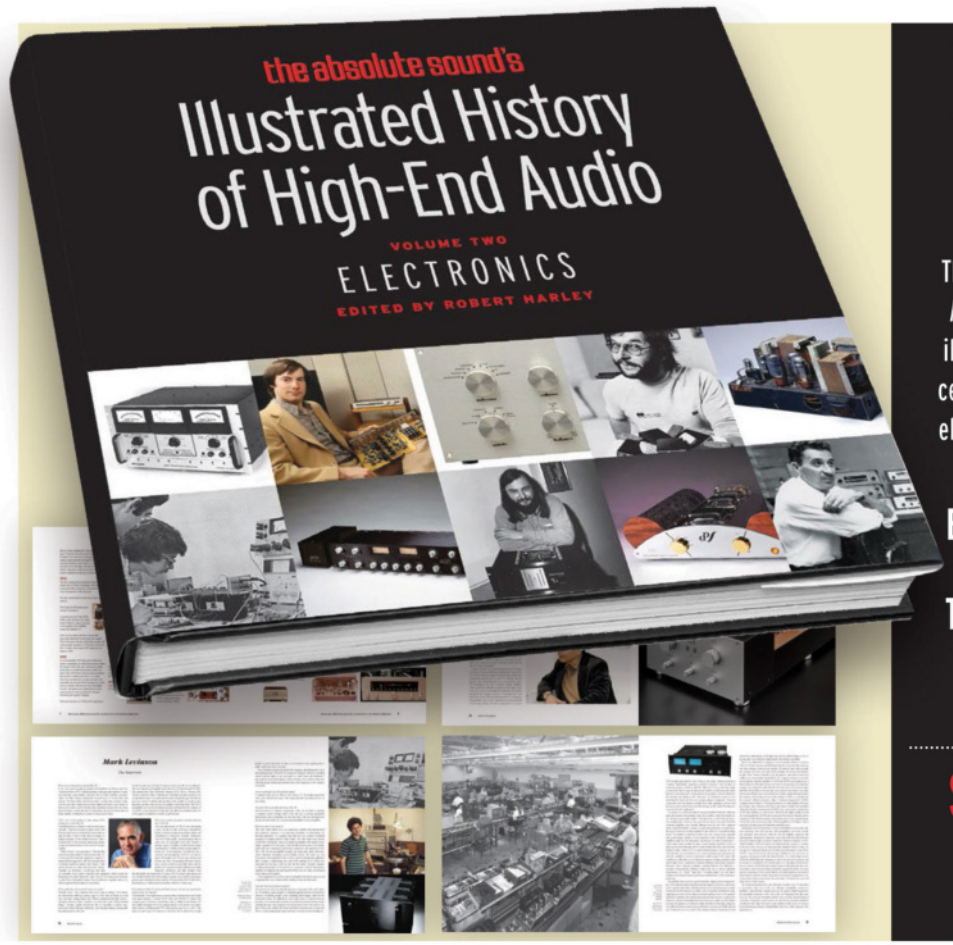


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**Thelonious Monk: *Brilliant Corners.*** Craft/Riverside (180-gram LP).

Recorded in December 1956, *Brilliant Corners* was Monk's first Riverside LP to feature his own compositions. Indeed, it seems the music was so risky that the liner notes are an almost apologetic warning to the listener. It's brilliant stuff, fresh and alive these 67 years later. As the fifth title in Craft Recordings' Small Batch Series, featuring a one-step lacquer process, cut all-analog by Bernie Grundman from the original master tapes, the sound here bests (by a fair margin) Analogue Productions' excellent 45 set from 20 years ago. And though I don't own either an original pressing or The Electric Record Co.'s recent mono edition, from the opening grooves of the title track it's clear what this stereo release delivers. It's intensely alive, more upfront and dynamically forceful, with exceptional clarity, focus, and a kind of you-are-there intimacy. Max Roach's drum break is mind-boggling in terms of tone, texture, sheer tympanic wallop, and air around the kit. Then, Sonny Rollins tonguing the reed of his tenor, Monk's percussive, plinkety-plonk, unmistakable voice, Oscar Pettiford's walking then running bass lines. The entire thing is dead quiet, so the instruments emerge from a ghostly silent backdrop. Limited to 4000 copies. If you can still find it, do! **Wayne Garcia**

**Further Listening:** Sonny Rollins: *The Sound of Sonny*; Max Roach: *Deeds, Not Words*

MUSIC ●●●●○ SONICS ●●●●○

**Terell Stafford: *Between Two Worlds.*** Le Coq.

Since his early 90s stint with Bobby Watson's Horizon, Terell Stafford has developed a solid career as a trumpeter, composer, and bandleader. Also, as an educator he directs the highly regarded jazz studies program at Temple University. For his ninth recording as a leader, he is joined by his frequent frontline partner, saxophonist Tim Warfield, plus pianist Bruce Barth, bassist David Wong, drummer Johnathan Blake, and percussionist Alex Acuna on four originals (three by Stafford), four jazz classics, and a gospel hymn. Two of the jazz classics are the standouts of this recording. The title track, written by former Horizon bandmate Victor Lewis, gets the album off to a burning start, complete with fiery solos by Stafford and Warfield, both of whom are fueled by Blake's dynamic drumming. Horace Silver's "Room 608" is played in 7/4 time, which makes it fresh. Acuna guests on three tracks, and his percussion gives a Latin touch to the gospel hymn "Great Is Thy Faithfulness." Stafford displays his ballad artistry with McCoy Tyner's "You Taught My Heart to Sing" and closes the CD with "Wruth's Blues," a rousing piece he wrote for his mother. This is an important document by a musician at the top of his game. **Greg Turner**

**Further Listening:** Johnathan Blake: *Passage*; Tim Warfield: *Spherical*; McCoy Tyner: *The Real McCoy*

MUSIC ●●●●◐ SONICS ●●●●◐

**Mark Turner: *Live at the Village Vanguard.*** Giant Step Arts.

After profoundly influencing a generation of aspiring tenor players over the past 20 years, Turner is now a respected elder figure with a rich resume. The inventive saxophonist-composer's first-ever live recording finds him re-examining his own tunes from 2022's *Return from the Stars* with his working quartet of trumpeter Jason Palmer, bassist Joe Martin, and drummer Jonathan Pinson. While Turner's softer, Warne Marsh-inspired tenor tone may lack the heavy blues bite of harder-edged tenor players of the 60s like Gene Ammons, Sonny Stitt, and Hank Mobley, his agile, singular lines and exacting unisons/harmonies with frontline partner Palmer are astounding, recalling the tight chemistry between Marsh and alto sax partner Lee Konitz in Lennie Tristano's groundbreaking band of the late 40s. That complex, Tristano-ish quality is perhaps best exemplified here by "Lennie's Groove," though those same long, harmonically elaborate melodies are also apparent on Turner originals like "Return from the Stars," "Terminus," the urgently swinging "Nigeria II," and patient, through-composed numbers like "Unacceptable" and "Lincoln Heights." An added treat is hearing Turner stretching out on an unaccompanied opening cadenza to his somber, chamber-like "Wasteland." **Bill Milkowski**

**Further Listening:** Mark Turner: *Lathe of Heaven*

MUSIC ●●●●◐ SONICS ●●●●●

**Ornette Coleman: *Something Else!!!!—The Music of Ornette Coleman.*** (Craft/Contemporary).

Lester Koenig at Contemporary will always deserve high praise for having given Ornette Coleman the chance to record in 1958, when most people in LA music circles thought he was a charlatan. Most of them still did after this release, too, even though considerable effort was put into trying to present the saxophonist in as "normal" a context as possible, including pianist Walter Norris in the studio band and focusing on early Coleman originals that were not as challenging as many of the classics on the records he would make for Atlantic from 1959–61. But there was no way to "normalize" Coleman's improvisations. Everything about them was odd: the abstract phrasing interspersed with bluesy licks and phrases that sounded like snatches of Mexican folk songs, the sometimes unpredictable dynamics, and the pained, keening tone. Don Cherry's trumpet solos were not as outré but they were still miles removed from conventional hard bop blowing. As for Norris, he sounded mostly like what he was at the time; a superior west coast pianist whose solos don't quite fit, except on unusual tunes like "The Invisible." *Something Else!!!!* is not essential Coleman but it has plenty going for it, and the audio on this beautifully produced reissue is really exquisite. **Duck Baker**

**Further Listening:** Ornette Coleman: *The Shape of Jazz to Come*

MUSIC ●●●●● SONICS ●●●●◐

**Chris Botti: *Vol. 1.*** Blue Note.

A huge smooth jazz star, capable of blocking out an entire month-long residency at New York's popular Blue Note nightclub each December, trumpeter Chris Botti cites Miles Davis' gorgeous muted trumpet work as a main inspiration for this ballads project. That quality comes across on his mellow renderings of standards like "Bewitched, Bothered and Bewildered," "Old Folks," and Miles' own achingly beautiful "Blue in Green," all played with a depth of feeling and reverence for the past. And while "smooth jazz" is often a pejorative today, these tunes (with the exception of the happy-jazz bossa nova offering, "Paris," featuring songwriter John Splithoff on vocals, and an overblown cover of Coldplay's "Fix You") fit more comfortably in the Chet Baker-Miles Davis oeuvre than in the Kenny G zone. Botti's golden tone, nuanced phrasing, penchant for melodicism, and genuine love for these jazz nuggets is apparent from track to track. He does stretch out and reveal impressive chops on the open-horn showcase "My Funny Valentine," which also features a stirring solo from classical violin virtuoso Joshua Bell. But Botti mostly plays it cool, embracing each melody with intimacy rather than abandon, setting an entrancing mood in the process. **BM**

**Further Listening:** Miles Davis: *Ballads*; Chet Baker: *Embraceable You*

MUSIC ●●●●◐ SONICS ●●●●◐

**John Scofield: *Uncle John's Band.*** ECM.

On this 2-CD set, his 49th as a leader or co-leader, esteemed jazz guitarist John Scofield has his way with familiar jazz standards and iconic pop tunes while premiering seven engaging originals. With Vicente Archer on bass and longtime collaborator Bill Stewart on drums, the interactive trio demonstrates a high degree of flexibility and empathy, whether swinging effortlessly on Irving Berlin's "How Deep Is the Ocean," Bud Powell's "Budo," and Ray Brown's "Ray's Idea," exploring new harmonic terrain on Bob Dylan's "Mr. Tambourine Man" and Neil Young's "Old Man," or putting a gentle, beguiling stamp on the Grateful Dead ditty, "Uncle John's Band." On their expansive version of "Mr. Tambourine Man," Scofield incorporates a backward guitar loop throughout the nine-minute piece, a callback to his self-titled 2022 solo guitar outing on ECM. As the piece heads into adventurous rubato territory midway through, the guitarist wails freely and in fluid fashion, even nonchalantly dropping in a bebop quote along the way. And while Scofield may burn with audacious flair throughout this collection of 14 tunes, he caresses ballads like "Stairway to the Stars" and Leonard Bernstein's gorgeous "Somewhere" (from *West Side Story*) with uncommon sensitivity and elegance. **BM**

**Further Listening:** Bill Stewart: *Space Squid*; John Scofield: *Swallow Tales*; *EnRoute*

MUSIC ●●●●◐ SONICS ●●●●◐

**Joe La Barbera Quintet: *World Travelers.*** Sam First (LP).

Here's a heartening new trend: Along with the vinyl-centric audiophile jazz labels that popped up shortly after polyvinyl chloride bounced back from a near-death experience, some other small labels recently emerged that share the same high standards sonically and musically. Located in Los Angeles, the jazz nightclub Sam First opened in 2018, and it recently launched its own record label. One of the first three Sam First titles, *World Travelers* boasts highly seasoned personnel, including the band leader, Joe La Barbera, whose lengthy discography includes work with pianist Bill Evans. The quintet plays with fire and precision while exploring memorable compositions by such artists as John Coltrane ("Grand Central") and Joe Lovano ("Landmarks Along the Way"), and there's no shortage of fiery solos from saxophonist Bob Sheppard, trumpeter Clay Jenkins, and pianist Bill Cunliffe. On the slow and pretty side, the Duke Pearson ballad "You Know I Care" gets a gorgeous reading here, with Sheppard and Cunliffe playing with great sensitivity. The recording combines the energy of a live performance with the clarity we more often associate with studio recordings. If great-sounding, well-played post-bop on dead quiet vinyl appeals to you, *World Travelers* is a no-brainer. **Jeff Wilson**

**Further Listening:** Joe Henderson: *Inner Urge*; Cannonball Adderley Quintet: *In Chicago*

MUSIC ●●●●● SONICS ●●●●◐

**The Peggy Lee Band: *A Giving Way.*** Songlines.

Peggy Lee may not be familiar to you, at least not *this* Peggy Lee, who's a highly respected cellist/composer in the modern jazz world. *A Giving Way*, the Peggy Lee Band's sixth studio album, features the cellist with Brad Turner (trumpet), John Bentley (sax), Jeremy Berkman (trombone), Ron Samworth and Tony Wilson (guitars), Andre LaChance (bass), and Dylan van der Schyff (drums). Peggy Lee's music shimmers and expands through melodies, harmonies, and rhythms that are evocative and at times dissonant and angular. With imagination and concentrated listening, we can appreciate the threads connecting composed music and free improvisation. Each of the members of the band excel within this music and have room to stretch out and expand ideas. The tenderness of the cello melody over the guitar and bass ostinato on "Internal Structures" patiently give way to a driving rock groove with distorted guitar explorations. The horns enter triumphantly. It's a party, a crazy, beautiful, and wildly stirring experience reflecting life's journey. We dance, we celebrate, we mourn, we move forward. Notable tracks include "A Giving Way," "Walk Over Walk," and "To the Point." The playing of these artful compositions is exceptional. **Karin Plato**

**Further Listening:** Meredith Bates: *If Not Now*; Bobo Stenson Trio: *Cantando*

MUSIC ●●●◐○ SONICS ●●●●○

**Jack Jones Featuring Joey DeFrancesco: *ArtWork.*** Cavalry Productions.

For decades, singer Jack Jones was regarded as a straight pop singer with jazzy inclinations, like his good friend, the late Tony Bennett. In his prime, during the 1960s and 1970s, Jones was a regular on the Vegas nightclub and TV variety show circuit. At age 85, his voice is clearly not what it once was. But what he lacks in intonation, resonance, and range he makes up for in poignant phrasing and sheer emotive power on ballads like Jacques Brel's "If You Go Away," Don McLean's "Empty Chairs," and the Sinatra staple, "This Is All I Ask." Jones' diminished voice is surrounded by some gorgeous arrangements by bassist John Clayton, who conducts a 53-piece orchestra on standards like "Fever," "Lush Life," "At Last," and "She's Funny That Way." An added treat is the unrestrained joy and unadulterated burn of the late Hammond B-3 organ giant Joey DeFrancesco in what turned out to be his last recording session. He wails abashedly at the end of "Fever," brings a bit of church to "At Last," and digs into Leon Russell's "This Masquerade" with fervor while also playing some affecting muted trumpet on a moving "Here's to Life." **BM**

**Further Listening:** Jack Jones: *The Gershwin Album*; *Bewitched*; John McLaughlin and the Free Spirits: *Tokyo Live*

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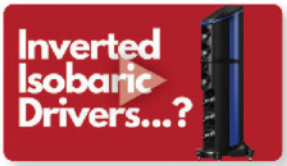

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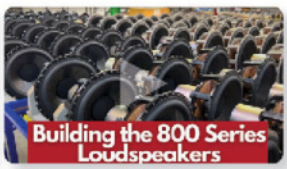

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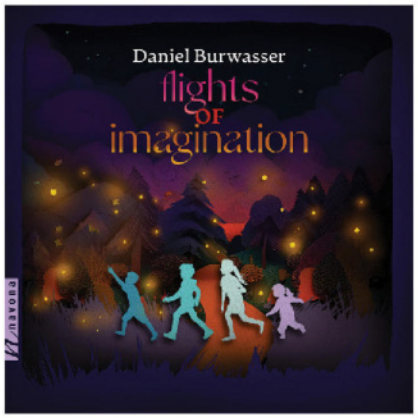



MUSIC ●●●●○ SONICS ●●●●○

**Daniel Burwasser: *Flights of Imagination.*** Various Artists. Navona.

*Flights of Imagination* has been called a portrait album, a genre not unlike a selected-poems volume. Both labels imply an artistic career that has reached a certain maturity. As overviews, they can display the creator's versatility and stylistic development. Unlike greatest-hits albums, however, they don't assume wide popular recognition. This album collects five works released separately between 1992 and 2019. The forces, venues, and recording teams were different for each.

Burwasser's first compositions were drum cadences for his middle-school marching band. His grandfather was an opera singer, his mother served as personnel manager for the Binghampton Symphony, and he studied piano from the age of five, so music's in his blood. Percussion is the instrumental passion that stuck. Though he has two graduate degrees and studied composition with the likes of Charles Wuorinen and David Del Tredici, Burwasser generously credits his middle- and high-school band directors with developing his musicianship, discipline, and compositional ambition. He himself spent 30 years laboring in the vineyards of the New York City public schools before joining the adjunct faculty of Hunter College. He is also Principal Director of the New York All-City Jazz Ensemble.

*Flights of Imagination* opens with the exuberant "Chasing Fireflies" (1997) performed by Gerard Schwarz and the Seattle Symphony. Following a clanging gamelan-like burst, a scampering string figure flits into the woodwinds and brass where it undergoes dialogic development among instruments and percussion. Slower, lyrical passages then alternate with a reflective version of the first theme, rhapsody-style, before the pace quickens to the rambunctious conclusion. While the title and musical material might conjure images of children, the dynamic scale and orchestration enlarge them to Cinemascope. Burwasser cites Stravinsky as an influence along with several jazz musicians; here my "comp names" would be the theatrical Prokofiev and jazz-classicist Gershwin. But along with "A Well-Traveled Road" (1992), "Chasing Fireflies" at various moments evokes many of the great emigré composers of Hollywood—Rósza, Tiompkin, Korngold—while remaining fresh.

"Flux" (1999), well played by the strings of Concordia Orchestra under Marin Alsop, alternates impressionist swells with agitated passages haunted by Bernard Herrmann.

The three-movement woodwind quintet "Whirlwind" (Arcadian Winds, 2016) is the only piece whose title Burwasser cautions against taking programmatically. It and the superb single-movement string quartet "Puck's Game" (Sirius Quartet, 2019) are essays in form. The latter, especially, most clearly shows the composer's command of counterpoint, modern harmony, proportion, and unity of effect. Unsurprisingly for a percussionist, he has a keen sense of the vividness that accentual rhythm can impart to a figure. He also clearly likes ostinatos, and "Puck's Game" makes terrific use of them, gripping the listener from first bar to last.

I defy any art music lover who also likes great movie music not to enjoy this album. Given the accessible and entertaining color, the technical rigor, and the expressive range of moods and textures his music displays, it's puzzling that Burwasser's *vita* shows no film scoring credits. Some producer is missing a bet. **Randall Couch**

**Further Listening:** *Stretching Boundaries* (Mark Ortwein, bassoon/Terra Voce)

MUSIC ●●●●● SONICS ●●●●●

**Tchaikovsky: Symphony No. 5.** Pittsburgh SO/Honeck. Reference Recordings (SACD).

The decade-long collaboration of Manfred Honeck's Pittsburgh Symphony Orchestra and Reference Recordings has produced vital live recordings of Beethoven, Brahms, Bruckner, Dvořák, Janáček, Strauss, and Shostakovich. This latest SACD, on RR's *Fresh!* imprint, completes the conductor's series of Tchaikovsky's three best-loved symphonies with a compelling reading of the melancholy *Fifth* that's dramatically acute but never maudlin or predictable. The outer movements manifest blazing power, the third a fluent virtuosity, and the second will leave you emotionally spent. Soundmirror's Dirk Sobotka and Mark Donahue create sonics with a dark lushness well suited to Tchaikovsky's mood of existential despair, a somewhat distanced perspective that still offers plenty of detail. The disc's "filler" is a treatment by Honeck and arranger Tomáš Ille of Erwin Schulhoff's *Five Pieces for String Quartet.* Schulhoff was a frequently performed Czech composer when, in 1942, his Communist sympathies and Jewish background landed him in a German concentration camp, where he died of tuberculosis within weeks. The five movements are succinct dances—a waltz, a serenade in a disorienting 5/8 meter, a polka, a tango, and a vigorous tarantella, all animated by their colorful orchestral garb. **Andrew Quint**

**Further Listening:** Dvořák: Symphony No. 8

MUSIC ●●●●● SONICS ●●●●●

**Rimsky-Korsakov: *Scheherazade.*** National SO, Anthony Inglis. Chasing The Dragon.

*Scheherazade* is a musical warhorse, if ever there was one, with scores of recordings available by nearly all the world's major orchestras. So why this new release? In short, because it sounds incredible. Chasing The Dragon is a small, limited-production label with fanatical attention to the technical aspects of recording. This is all spelled out in the beautiful booklet that accompanies the vinyl version (there is also a digital file available), which, in addition to excellent notes about the music and the performers, lovingly describes the array of vintage microphones, the Studer reel to reel tape deck, the half-speed mastering, and laborious post-production work. The result is evident at the first booming notes, with the massed strings, especially, as luscious, balanced and vibrant as any recording I know. There is no discernable background noise, just the reverberance of the hall. Fortunately, the performance is also very fine, if not nearly as virtuosic and sizzling as, say, the Reiner/Chicago version, another audiophile favorite. This is not a difference in quality as much as a difference of style. The playing here is pleasingly unagitated and sweetly lyrical, and relates the fairy tale story with stealthy power. **Peter Burwasser**

**Further Listening:** Rimsky-Korsakov: *Scheherazade* (Chicago SO, Reiner/RCA)

MUSIC ●●●●○ SONICS ●●●●○

**Bernard Herrmann: Suite from *Wuthering Heights; Echoes For Strings.*** Fuge, Williams, Singapore Symphony, Mario Venzago & Joshua Tan. Chandos.

Cracking timpani, growling brass, and a falling piccolo shriek set the tone for this grim, dramatic score from this master of film music. While composing for a 1944 film version of *Jane Eyre,* Herrmann decided to set *Wuthering Heights* as an opera, with the libretto by his wife, Lucille Fletcher. It took him eight years, and he never saw it staged. He did record the entire score, but only in 2011 was the complete opera presented, by the Minnesota Orchestra. This suite cuts the dialogue and condenses three hours into one. The cruelty that pervades the story is never out of sight. It presents itself in luxuriating love duets, as when complex orchestral writing threatens to undermine Heathcliff and Cathy in "On the moors" and "Look, the moon." Even the following Nocturne that gently closes the scene has dark tendrils. The vocal lines remind me of Samuel Barber, while the textures and orchestration are in the late German romantic tradition of Schoenberg's *Gurre-Lieder* and similar works. Dark, gloomy, and slow it is, but powerful and engaging. The singing is stellar; English texts are included. Herrmann's eerie, wandering quartet, *Echoes*, is atmospherically played by string orchestra. **Stephen Estep**

**Further Listening:** Zemlinsky: *Die Seejungfrau* (Helsinki Philharmonic, John Storgards/Ondine)

MUSIC ●●●●● SONICS ●●●●●

**All Roads.** Brendan Shea, violin; Yerin Kim, piano. Blue Griffin.

This husband-and-wife duo verifies the truism that great chamber music playing depends on a strong personal relationship between the musicians. It is delightful to hear them tossing meticulously formed phrases back and forth to each other, as if in conversation. The title of the album, *All Roads*, is a reference to the old saw that all roads lead to Rome, but here reinterpreted as all roads lead to Vienna, certainly one of the most musical cities on earth. This thoughtfully constructed program includes two masters of the 19th century, Beethoven (his sparkling Violin Sonata No. 3) and Schumann (his rhapsodic, moody Violin Sonata No. 1), and a pair of interesting 20th-century composers. The Amy Beach revival that occurred a generation ago was not a passing fad; her lyrical, original music is now firmly in the standard repertoire. Alfred Schnittke is a more controversial figure, starting his career as a secret serialist in the Soviet Union, when that style was officially banned, and morphing into an utter throw-back, as exemplified by the disarmingly amiable *Suite in the Old Style*, heard here, probably his best known work. The recording, engineered by Blue Griffin chief cook and bottle washer Sergei Kvitko, is stunningly realistic. **PB**

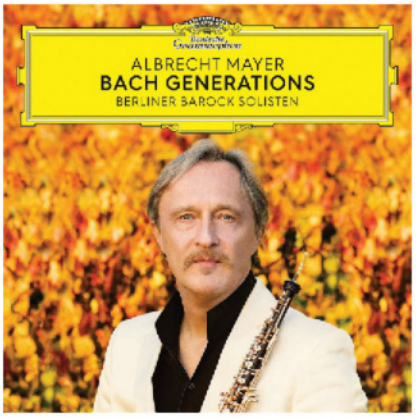
**Further Listening:** Dvořák ,Grieg, Janáček, Brendan (Shea-Kim Duo/Blue Griffin); Beach: Chamber Music (Joanne Polk, Lark Quartet/Arabesque)

MUSIC ●●●●● SONICS ●●●●●

***Oklahoma!*** Sinfonia of London, Wilson. Chandos.

Ever since John Wilson, age 14, was pressed into playing percussion for a local production of *Oklahoma!* in his native England, he's "been dreaming of making it for 35 years." Given the opportunity, he did what he always does: return to original sources to restore traditionally cut numbers, numerous passages of scene- or act-transitions, perhaps best of all the original 29-member pit orchestra with Robert Russell Bennet's orchestrations, including vintage instruments, every note of the original score here for the first time. The Sinfonia of London could not be bettered, nor could the flawless casting, right down to the smallest roles and the rousing chorus. But Wilson himself—leading, guiding, supporting, controlling it all, with incomparable joy, energy, style, panache, and conviction—is the real star here. (Chandos' superlative reproduction, quite astonishing in its realism, places you in the ideal seat in a really good theatre.) *Oklahoma!* pioneered a powerful new organic unity in musicals, with song, music, and dance seamlessly integrated into dialogue, drama, and narrative. A landmark in American music theatre, it now at last has, after 80 years, the landmark recording it has long deserved. This is the most important new release of the year, not to mention the best. **Paul Seydor**

**Further Listening:** Wilson's production at the BBC Proms on YouTube




MUSIC ●●●●◐ SONICS ●●●●○

***Bach Generations*:** Albrecht Mayer, oboes; Berliner Barock Solisten. Deutsche Grammophon.

Few things delight me more than hearing musicians play with an exceptionally beautiful tone and nuance in every line, and Mayer does exactly that in these transcribed concertos and short pieces from the Bach family. Mayer, who discovered Bach while a chorister at the Bamberg Cathedral, approaches the long phrases with the affection and commitment of the finest of singers. His vibrato and rubato will be too romantic for some, but I find them compelling and tasteful. The music dances, too, especially in the graceful, flirtatious final movement of JS Bach's Harpsichord Concerto No. 4. My prose might be turning deep purple by now, but listen to the way Mayer turns the "Air" from the Third Orchestral Suite into a reverential prayer and see if you agree. JCF Bach's Keyboard Concerto No. 2 may not fit the hands as well, but Mayer is still impressively nimble, and he gets his instrument's tone sounding more playful than I've ever heard it. I only wish the orchestra didn't shy away from vibrato, as its sound can be glassy. Bach fathered 20 children; you don't do that without a little vibrato. That aside, it's a thoroughly lovely album with excellent sound. **SE**

**Further Listening:** Telemann: Fantasias & Canons (Fabrice Ferez, oboe/Gallo)

MUSIC ●●●●○ SONICS ●●●●○

***Hearsay*:** Atlantic Chamber Ensemble. Imaginary Animals.

The Atlantic Chamber Ensemble is made up of musicians with connections to central Virginia. They've been playing together since 2011, and this, their first album, shows off both their fine ensemble playing as well as their individual musicality. The 1998 Sextet from French composer Guillaume Connesson (b. 1970) is perky, compact, and satisfying; there are hints of John Adams, Stravinsky, and Ravel, but Connesson has his own good humor and interesting harmonic gestures that drive the music forward. Its simplicity adds up to more than the sum of its parts—consider the twisting polyphony in the slow movement that grows naturally from straightforward individual lines. Oscar Navarro (b. 1981) based his woodwind quintet *Juego de Ladrones* (Game of Thieves) on a Miguel de Cervantes novel that depicts the travels and adventures of two young men seeking their fortune. Off-kilter rhythms, luxurious Rodrigo-esque lines, and comic haste set the moods. Gerald Finzi's *Eclogue* for piano and strings acts as a serene palate-cleanser. The ACE commissioned *Rags & Hymns of River City* from Richmond native Mason Bates. Jittery and inoffensively jazzy, it might make a better soundtrack than a stand-alone piece, but it's still an enjoyable wind-down to a worthwhile release. **SE**

**Further Listening:** *Time* (Michael Torke/ Ecstatic Records)

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*Everyone wants to be big; we just want to be the best at fulfilling the needs of our customers.*

# Q&A

## Maier Shadi

## The Audio Salon

Neil Gader

**What ignited your interest in the high end?**

My earliest memories were of morning breakfasts on the weekends with my family, listening to what was at the time a very high-end system. My parents and older sister taught me how to use the turntable and handle records.

**Did it come from the music side or the electronics side?**

At such a young age, the experience was completely merged and indistinguishable between music and electronics. Interestingly, my father had a huge collection of comedy albums that I would spend a lot of time listening to.

**How old were you when you bought your first high-end system?**

Eighteen years old.

**What were the components?**

A Nakamichi CD player, a Soundstream preamplifier, PS Audio 250 Delta monoblocks, and ADS M15 Speakers. Just a few months later, I purchased Jeff Rowland Model 3 monoblocks, Hales System 2 Signature loudspeakers, a Nakamichi 1000mb transport, and an Apogee 1000 D/A.

**How did The Audio Salon come about?**

I was fascinated at a young age by the creations of what we now call artisanal or bespoke manufacturers across all markets, whether it was audio, cars, watches, or cameras. When I would visit the stores, I was made to feel like I didn't belong. I thought it was because I was young, but later I discovered it was part of the culture of high-end dealers. The manufacturers were completely different in that they were happy to share their craft and teach me. One example in hi-fi dealerships is that they wouldn't let me experience the highest-performance systems in the store. We made our store by appointment, so our customers have their own time without interruption and can touch, ask about, and experience any part of the store—even the warehouse. The single person that pushed me to work on The Audio Salon was Dennis Prager, after I'd worked with him on his system for a few months. He had dealt with several dealers over 40 years and proclaimed he had never experienced service like mine. He insisted that I needed to pursue this as my life's work instead of as a part-time interest.

**What does the term "high-end audio" mean to you? Has that term changed over the years.**

Early on, I thought high-end audio was a destination that you could chart a course to. Now I know it to be far more complex—a symbiotic relationship between a group of components and a listener that brings about the suspension of disbelief. It's not just about the listener engaging in it but also the performers, recording engineer, mastering engineer, and all the equipment manufacturers creatively and passionately decreasing the gap between the original experience and the sense that an experience is being recreated. My goal is to develop systems that ask the least of the listener for the longest possible amount of time as they engage in the suspension of disbelief.

**What are the main challenges confronting the retail audio business today, and how have you and The Audio Salon met those challenges?**

Too many retailers want to be everything to everybody. We have spent a significant amount of time in our store and in factories with the limited number of manufacturers that we represent. We have traveled around the globe to accomplish this. In many cases, we have asked permission to attend other dealers' installations of ultimate performance systems to learn from manufacturers, dealers, their customers, and their customers' staff. Everyone wants to be big; we just want to be the best at fulfilling the needs of our customers.

**What are the greatest challenges confronting the high end?**

The temptation of stores and customers to engage in transactional relationships. My personal horror would be to see a customer name on an invoice that doesn't mean more to me than the sale itself.

**Outside of audio, what do you do for fun?**

I love traveling with my wife and two sons whenever possible. The most important thing I think we can do is to meet people who think differently than we do. Over the past few years, my customers have reignited my passion for cars. My father and my sons all share this bond with me. One of the great honors of my career happened when I was asked to combine my passions of hi-fi and cars by consulting with Singer Vehicle Design on its car audio systems. Singer's motto is: "Everything Is Important."

**What inspires you about your work?**

The people and the stories are the best part of my work. High-end audio has created an invitation to experiences and opportunities I would have never imagined. I never would have dreamed I would get to spend a few days in the presence of Sir Paul McCartney, for instance. tas

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